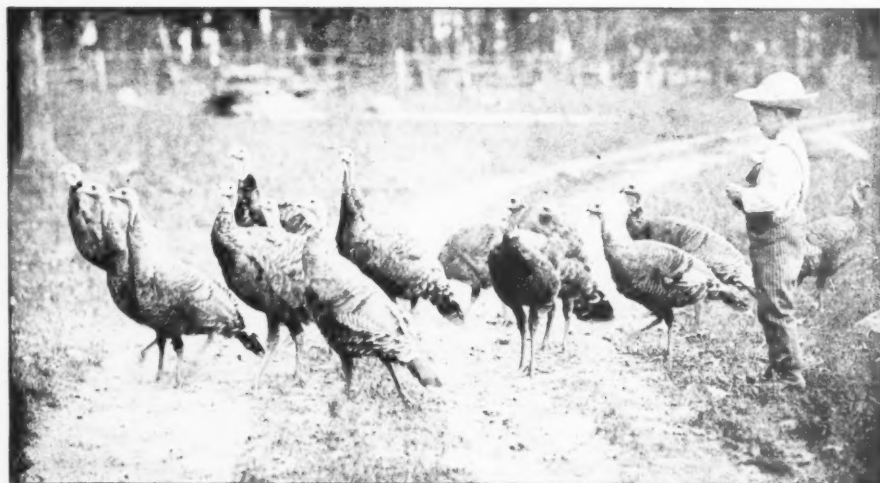


VOL. XIV. NO. 2

1916

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THE CORNELL COUNTRYMAN



COMMON SENSE DAIRY INSPECTION

By ERNEST KELLY

CONFIDENCE IN RURAL WORK

By T. N. CARVER

ESTIMATING THE NATION'S CROPS

By L. A. ESTABROOK

MANURIAL VALUE OF FEEDS

By E. S. SAVAGE

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NOVEMBER

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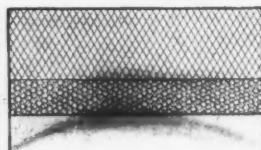
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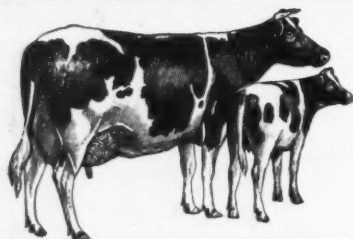
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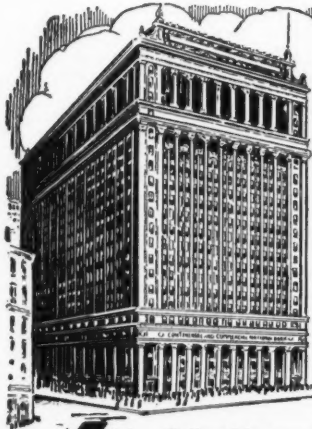
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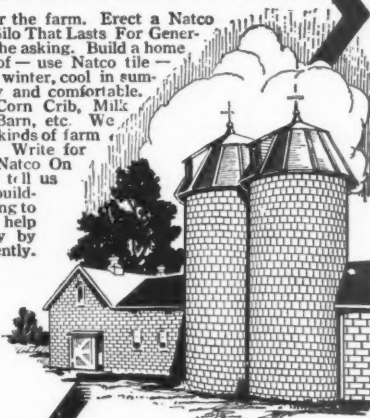
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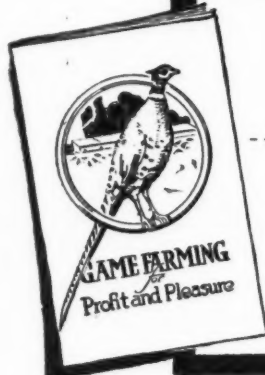


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NIGHT LIFE

Verse by R.L., '18; decoration by B.A.

WHOA! Molly, steady! Take it easy girl:
A night like this ain't made to hurry through.
Our road lies plain and peaceful, winding white
Down to the valley, over yonder hill;
And all alone — except for me and you.
Just me'n' you! Lord, what a wondrous night!
So deep, so understanding, kind and still.



THE CORNELL COUNTRYMAN

Vol. XIV

ITHACA, N. Y., NOVEMBER, 1916

No. 2

Confidence and Economy in Rural Work

BY T. N. CARVER

Professor of Political Economy in Harvard University

ONE of the greatest factors in the economy of effort, otherwise called the saving of labor, is confidence. Its greatest value is not found in the stability which confidence brings to the financial market, though this is very important. It is even more important in its effect upon the foundations of the economic structure of which the financial market is the apex. Nor is its greatest value found in the unshackling of enterprise which results from confidence in the government, though this is of tremendous importance. So important is this that it is generally conceded by students that even a bad system of laws, provided they be enforced with certainty, regularity, and precision, may be better than a good system when enforced with uncertainty, irregularity, and lack of precision. In the former case the citizen knows what to expect and can adjust his plans to the situation. In the latter case, he never knows what to expect, nor how to lay his plans. Of course, a combination of a bad system of laws with an irregular and uncertain administration is vastly worse; but the point is that confidence in the regularity and calculability of the government is of the utmost importance.

The average citizen has more points of contact with his fellow citizens than he has with the financial market or even with the government itself, and the sum total of the dealings among individual

citizens exceed, not only in number but also in the sum total of importance, the dealings with the financial market and the government. It is in these multifarious relations between man and man that confidence assumes its greatest importance,—where it lacks results in the greatest waste of effort, or its presence in the greatest economy.

Professor E. A. Ross in his book on "The Changing Chinese" mentions certain parts of China where the owner of a rice field must guard his crop every night to keep it from being stolen. The waste of energy involved in this process must be tremendous. Unless we have at some time been confronted with the same necessity, we can scarcely appreciate how much energy we save in being able to sleep at night in confidence that the products of our labor will not disappear before morning. But before we waste too much sympathy on those Chinese farmers we should consider the position of the fruit grower and the market gardener in the neighborhood of our large towns. Unless one is able to produce on a scale sufficiently large to permit one to hire a watchman, or unless one is very favorably situated with respect to police protection, one is at the mercy of town marauders. This injures the town consumers as well as the country producers, because it adds to the cost of growing fruits and vegetables, and the town consumer must share in the cost. The sheep grower has

his troubles also with the sheep-killing dog, which adds to our cost of living by discouraging sheep husbandry. Until we can create conditions under which every farmer can go to bed at night in serene confidence that his property will not be stolen or destroyed before morning, we shall not achieve the maximum economy of effort.

But more important than safety from theft or destruction is the confidence of neighbors in one another which will enable them to work together for their common good. One of the greatest hindrances to coöperation is the lack of confidence which neighboring farmers feel in one another. The writer has talked with and to a good many hundred farmers on the subject of coöperation. He has found very few who doubted that it would be a good thing; but when he has tried to find out why they did not coöperate, he has generally found that it was because of a lack of confidence in one form or another. Sometimes this lack of confidence is due merely to a feeling of uncertainty as to just how to begin. We are all of us afraid of the water until we have been in often enough to feel certain that we know how to swim. This lack of confidence should, perhaps, be called caution, which, up to a certain point, is a good thing. Frequently, however, it is due to a sheer lack of confidence in the integrity or good will of one's neighbors. Where this lack of confidence is justified by such lack of integrity or good will there is need of a moral or religious reform. The reformer who could create integrity, reliability, and good will, where these qualities do not now exist,

should be ranked with the mechanical inventor or the engineer who devises labor-saving methods. Nothing could economize labor more effectively than the creation of these moral conditions which would enable the neighborhood to work together rather than at cross purposes.

In some respects, a neighborhood may be likened to a large and highly complicated machine. If the various parts are not working in harmony but are banging against one another, there is a great waste of power and efficiency. It would not be stretching the meaning of terms very much to say that a highly immoral condition existed within the machine. In the social organism, the harmonious working of parts is the essence of morality, and, conversely, the inharmonious working of parts is the essence of immorality. It is obvious that the coöperative organization of rural communities, so much needed for agricultural efficiency, is not to be created by merely saying "Go to now: let us work together."

There can be no effective coöperation where there is no mutual confidence: there can be no mutual confidence where there is little integrity, reliability, or good will. In a community where every man's word is as good as his bond, where every neighbor can be relied upon to do his part faithfully in the upbuilding of the community, and where there is a neighborhood pride and patriotism and mutual good will among all the neighbors, there will be no difficulty in working together, which is the essence of coöperation.

The new rural economy is to be stimulated by closer business relationships, and fostered by closer neighborhood.

SIR HORACE PLUNKETT

A Small Trout Producing Plant for the Farm

BY G. C. EMBODY

Assistant Professor of Aquiculture, New York State College of Agriculture
at Cornell University

(Continued from the October Issue)

THREE-YEAR-OLD breeders are obtainable from the various commercial trout farms in New York, Pennsylvania and the New England states. Prices vary, but breeders are generally quoted by the pound and seventy-five cents is probably the average price.

Obtaining the Eggs

Spawning time varies from year to year and from one place to another, being governed largely by the temperature of the water. In central New York it usually begins late in October and extends through November, and some years well into December. This applies both to brook and brown trout. The rainbow trout, however, spawn from January to the latter part of April.

As the sex elements ripen both males and females swim up into the spawning race and begin to excavate their nests. The "spawn taker" visits the race daily and when one or more pans are seen they are captured and the eggs removed and fertilized. A rectangular frame of wood or iron is made just large enough to fit across the lower end of the spawning race. This is covered with netting or burlap sufficient to form a deep bag. In capturing the breeders the frame is inserted in the lower end of the race and the trout from above are driven down into it.

An ordinary tin pan is rinsed with water and placed conveniently for receiving the eggs. A female, known by her greatly distended abdomen is first selected and held firmly by the tail with the left hand. The eggs are loosened from the ovary by pressing the forefinger of the right hand across the anterior region of the abdomen. Then the edge of the forefinger and hand is moved slowly backward over the abdomen, first on one side and then on the other. If the female is entirely "ripe,"

the eggs will easily flow out into the pan. A male is then taken and the "milt" is pressed out in a similar manner. The process is repeated many times with each fish until the eggs and "milt" cease to flow. Many males and females are thus "stripped" into the same pan. Eggs and milt are next gently and thoroughly mixed with the fingers or with a feather and finally set aside to await complete impregnation. After ten minutes has elapsed, water is added and gently mixed with the eggs. Then they are allowed to stand twenty minutes to "water harden." They absorb water and gradually increase in size. The final stage of the process consists in washing away the excess of milt and any foreign matter. This is most easily done by holding the pan under a very gentle stream of water. The eggs are now ready for the hatching trough.

Several hatching trays must be provided. These vary in size and form in different hatcheries but the regulation tray, generally used in Government hatcheries, consist of a rectangular frame made of wooden strips three-fourths of an inch wide and about the same thickness. The outside dimensions are about twenty by thirteen and three-fourths inches, just large enough to fit loosely into the hatching trough. The frame is covered on one side with galvanized screen, having elongated meshes of approximately one-eighth by three-fourths inches. The whole tray is painted with the tar and turpentine mixture. The length of the tray is of small importance, so long as it does not exceed twenty inches, and screen with square mesh may be used instead of that mentioned. Ordinary window screen has been found to meet the requirements,

but it rusts quickly and will be serviceable no longer than one season.

The eggs are placed in the trays and the trays firmly wedged in the trough to such depth that the water flows over and under the eggs. The troughs are subsequently covered with boards to shade the eggs and also to keep out enemies.

Care of the Eggs

Trout eggs become very tender a few hours after impregnation and continue so until the embryo is well advanced and the eggs begin to show through the shell as black spots. After this they are less susceptible to disturbances in the water. They *must* therefore be handled with great care until "eyed" and the operations consist chiefly in keeping them clean and in removing those that die. Dead eggs are white and opaque and easily distinguished from the almost transparent living ones. They are removed with a little tool called an egg picker, merely a pair of wooden forceps with wire loops fastened to the points (see figure 2). A stiff feather is inserted in the other end for use in stirring the water about the eggs and thus disengaging sediment.

Seth Green, one of New York's pioneer fish culturists, claimed that trout eggs hatched fifty days after impregnation in water having an average temperature of fifty degrees. This is generally true, but there is some variation due to the varying conditions in the oxygen content of the water, light intensity, and to other factors perhaps too little understood to enable one to formulate a general law.

Certain records of the Cornell University Hatching Station show the period to be ninety-three days at a temperature of forty degrees, as follows: date of impregnation December 20,

eggs eyed February 28, 70 days; hatching March 22, 93 days.

Average water temperature should be 40° F.

These eggs were taken toward the end of the spawning season, but those taken earlier and subjected to similar conditions should develop at the same rate, thus: date of impregnation November 1, eggs eyed January 9, 70 days; hatching February 1, 93 days.

The "Fry"

Newly hatched trout are termed "fry." They are provided with a sac containing nutriment sufficient for many days' nourishment and may live and grow without having to search for food. The fry is a helpless creature easily preyed upon by many small aquatic animals. The care of the fry consists chiefly in keeping out these predaceous animals and otherwise eliminating all conditions detrimental to their lives.

They are sometimes allowed the freedom of the trough, in which case the outlet must be screened to prevent escape and a screen also placed at the head of the trough to keep out the predaceous animals. More often, however, the same purposes are accomplished by transferring them to deep trays, made after the model illustrated in figure 4. The trays and troughs are cleaned every other day and more often if large quantities of sediment accumulate therein. The screens need daily attention.

"Advanced Fry"

The yoke sac may persist twenty or thirty days, depending upon the water temperature. With its disappearance the young fry rises and maintains itself head into the current, exhibiting a desire for food by snapping at the minute particles which float by. At this stage the young trout are termed "advanced fry." During the first few days of this stage



Eggs Are Removed With This Little Tool—The Egg Picker

they must be fed at least every two hours, from eight a. m. until six p. m. In many government hatcheries they are fed every hour.

Fresh beef or hog liver is the favorite food. It is chopped, mashed on a board and forced through a fine sieve. About one teaspoon to every thousand trout is thoroughly mixed with an equal quantity of water and cast into the trough with a feather or small wooden paddle. Frequent feedings undertaken in this manner will in the course of a few days induce all of the advanced fry to strike vigorously at the particles of food. A few other foods have been used as successfully as liver. In France hog spleens are used in much the same manner. In January, they have been successful in feeding hard-boiled yokes of hen eggs and also fresh and even canned herring roe. Eggs would be more generally available for farmers in this country than any other food, and for a small establishment such as the one here described it is doubtful if a more economical food could be found. Eggs of the quality known as cooking eggs answer the purpose quite as well as the more expensive fresh variety and may be kept in good condition throughout the feeding season of advanced fry.

After two weeks the number of feedings may be reduced to three a day and a month later to two a day.

"Fingerlings"

If all goes well, trout hatched the fore part of February should be one and one-half to two and one-half inches long by July first. They are now called "fingerlings" and will require larger quarters. Pond C has been provided especially for them. Their care consists chiefly in feeding and keeping the pond clean. The practice of feeding twice daily is continued through the summer; thereafter only one feeding is necessary. The size of the food particles is gradually increased. It is no longer necessary to mash the food; it is sufficient to pass it through the grinder and through a coarse sieve to eliminate the fibre.

When the fingerlings are from two



Gathering the Unfertilized Eggs

to three and one-half inches long it is safe to feed certain dried meats. Beef scrap, dried fish, and "shrimp dust" are the ones which have been tried. Shrimp dust has given the best results. It consists of dried parts of shrimp not used by the canners, is high in protein and phosphorous, and resembles in composition the natural food of trout more closely than any other food available. It costs, including freight, a little less than three cents a pound. Before being fed it must first be ground to a size suitable for the fish and then softened with water.

The question of a balanced ration consisting of products easily obtained and economically preserved, is one of the most important yet to be solved in the interest of intensive fish farming. That it has thus far been neglected is due primarily to the lack of an experiment station equipped especially for undertaking this work.

Yearlings and Older Trout

Trout a year old should average about

four inches in length; a few will probably measure as much as six inches while many others will be less than the average. It becomes necessary to transfer them to the larger ponds, placing those of and above average size in one pond and those below this size in the other. Here they are cared for in the same manner as before. Food is given once a day and the ponds are cleaned once each week.

The more rapid growing individuals will be large enough to eat (seven to nine inches long) when one and one-half years old. With very few exceptions, all will have reached this size before the age of two and one-half years.

It must be remembered that during all this time the breeders must be cared for as are the yearlings, excepting that larger chunks of food may be thrown to them. If the food be a mixture of liver, lungs and other lean meat, as is usually the case, it is merely ground into chunks the size of hickory nuts and fed directly. In the case of large trout, it is common practice to add wheat middlings to the meat

in proportions of one to three. This reduces the feed bill a little and seems to give the breeders sufficient nourishment. If one prefers to use dried meat products, a cooked mush made of wheat middlings and either shrimp dust or ground dried fish in one to three proportions will suffice.

This account does not exhaust the list of topics relating to trout farming nor does it enter into many of the details of those treated. The possibilities of creating improved races of trout by selective breeding, the financial aspect and the laws of various states regulating the work—are all interesting and important. They should at least be thought of by every one intending to enter this field of husbandry. It is to be regretted that they cannot be covered here.

Finally it is well to remember that a visit to one of our state hatcheries during a busy season will give a much clearer understanding of the various operations in trout culture, than may be gained from the literature alone.



Cornell Hatcheries in Cascadilla Creek

Washington at Work

A series of articles furnished exclusively to the Association of Agricultural College Magazines. Bureau Chiefs of the United States Department of Agriculture describe from the inside their work for the farmer.

II. ESTIMATING THE NATION'S CROPS

BY LEON A. ESTABROOK

Chief, Bureau of Crop Estimates

THE Government crop reports are prepared and issued by the Bureau of Crop Estimates. In all about sixty-five different crops and classes of live stock are reported upon each year, besides the regular monthly report on prices. Crop conditions in foreign countries and information regarding exports and imports of agricultural products, and inland and ocean freight rates, are also compiled and published by the Bureau from time to time.

Purpose of Crop Reports

The purpose of the Government crop reports is primarily to supply accurate and unbiased information to farmers and to the public regarding crop conditions and prospective yields so as to enable farmers to plant and market their crops to the best advantage; to enable buyers and dealers to judge intelligently of the probable supply and demand and the future trend of prices, so that they can calculate more closely the risks involved and the prices they can afford to pay for farm products; to enable transportation companies to estimate the number of cars that will probably be required to move crops promptly after harvest; to enable bankers to estimate and to provide the amount of capital required to finance crop production and movement; to enable manufacturers, jobbers, dealers and merchants to plan operations months in advance, so that the enormous quantities of implements, machinery, fertilizers and other supplies required by farmers may be distributed economically and without undue loss or waste in the regions where prospects indicate prosperous condi-

tions; all of which is of direct or indirect benefit to farmers who, in the long run, profit by the prompt movement of their crops, a ready market, and an economical distribution of farm supplies. The issuance of Government crop reports tends also to prevent the circulation of biased or misleading reports by irresponsible parties who are tempted to give out such crop information as will influence prices in their favor.

Organization of the Bureau

The organization of the Bureau consists essentially of an office force at headquarters in Washington and a field force in every State. The office force has three main divisions: *Administrative*, including the Chief and Assistant Chief of Bureau, the Chief Clerk, and a small clerical force, who direct the activities of the Bureau, purchase and distribute the necessary supplies, answer inquiries, arrange for the necessary cooperation with national, state and local organizations; a *Division of Crop Reports*, including a Chief and Assistant Chief of Division, and a large force of clerks and computers, who mail out approximately 2,500,000 schedules annually and sort, tabulate, and average the returns from the field force; a *Division of Crop Records*, including a Chief of Division and a small force of statistical scientists and clerks, who translate, analyze and summarize official crop reports and agricultural statistics from foreign countries, conduct special investigations the results of which are published in bulletins, and answer inquiries requiring special research. The force at Washington is equipped with a very complete sta-

tistical library and various computing and duplicating machines. The field force consists of a salaried Field Agent in each state or group of small states, several Crop Specialists with headquarters in the field, and approximately 150,000 voluntary crop reporters, who serve without compensation. An important branch of the Bureau is the Crop Reporting Board, consisting of the administrative officials and one or more Field Agents called in each month, which prepares the monthly crop report for issuance by the Department.

How Data Are Obtained

Schedules of inquiry are sent regularly to about 35,000 voluntary Township Reporters, one for each township or voting precinct in the United States, each reporting upon the crops of his immediate neighborhood with which he is personally familiar; to about 3,000 voluntary County Reporters, one for each county in the United States, each reporting for his entire county and basing his report on personal knowledge and observation, supplemented by information obtained from a small list of selected aids who report directly to him by schedule, letter or telephone; and to large lists of special voluntary reporters regarding particular crops, prices, or questions, such as cotton, truck and fruit crops, live stock, grain stored in mills and elevators. These voluntary crop correspondents send their reports directly to the Washington office, where each class is tabulated separately by states, districts and counties. Additional schedules are sent to the Field Agent, the Crop Specialists, and their voluntary aids, each Field Agent having from 250 to 1,500 aids, depending upon the size of his territory, and each Crop Specialist having from 200 to 8,000 aids. Each month the Field Agents and Crop Specialists travel by rail, automobile or other special conveyance throughout the important producing sections of their territory, personally inspecting crops and interviewing well informed growers. Upon their return to their field stations at the close of the month they tabulate the returns of their aids and forward

written and telegraphic reports directly to the Department.

Prevention of Leaks

The dates and hours on which the crop reports will be issued are determined for the entire year by order of the Secretary issued the preceding December. On the afternoon preceding a crop report day all telephones in the Bureau are disconnected. On the morning of crop report day all outside doors of the Bureau are locked and guards are stationed outside to prevent any one from entering or leaving the Bureau after the Board has assembled and before the time set for the issuance of the report. The Crop Reporting Board meets in the office of the Chief of Bureau with a force of expert computers and operators of duplicating machines in an adjoining room, the doors of both rooms being locked to prevent communication with the remainder of the Bureau. These precautions are taken to prevent any one from obtaining information in advance regarding the report prior to the moment of its release. All employees of the Department connected with the preparation of crop reports are prohibited by law, under maximum penalties of a fine or imprisonment for not exceeding ten years, or both, from speculating in crops concerning which reports are made, or from disclosing information regarding them in advance, or from compiling or issuing any false statistics regarding them.

Issuance of the Crop Reports

At the time set copies of the report are given to representatives of the press who are waiting for it in the corridors and who immediately telephone or telegraph the results to the press associations, to the various exchanges, and to the principal newspapers in the different states. The Department also sends a code telegram immediately to the Weather Bureau Station Director in each state, who has previously been provided with a skeleton form and who sees that the new figures are at once inserted and a sufficient number of copies printed and mailed the same day to all the local newspapers in the state. The manu-

script report is sent to the Public Printer and in the course of a few days about 160,000 copies of the Monthly Crop Report are printed and mailed to crop reporters and others whose names are on the mailing list. The telegraphic and telephone reports of representatives of the press usually appear in the afternoon papers. The Department's final estimates of live stock and crop production

by Field Agents, and the assessors' returns in each state, the Crop Reporting Board estimates the total number of each class of live stock or the acreage planted to each of the staple crops. For each succeeding year the Bureau estimates the percentage of increase or decrease as compared with its estimates for the preceding year.



Ready For Action

At the moment the report is released, newspaper men rush to telephone and telegraph the results to press associations, various exchanges and to the leading newspapers of every state

appear in the appendix to the Yearbook for a long series of years and are available for reference, study, comparison and analysis.

Live Stock and Acreage Estimates

The year following the census the crop reporters of the Bureau are requested to assume that the census figures for the previous year represent 100 and to estimate on a percentage basis the increase or decrease which in their judgment has occurred since the census was taken. From straight and weighted averages these estimates, as well as thorough investigation of all sources of information

Crop Condition Reports

The crop condition reports of the Bureau are based upon a percentage of normal. While some confusion exists as to the exact meaning of the word "normal," because it is not an exact measure of quantity or quality, and is different for each locality and even for each farm or field, it nevertheless has proved to be the most satisfactory standard which the Bureau has tried. The "normal" is used by the Bureau as the equivalent of "crop expectation." When a farmer plants a given field to a particular crop, he knows what that particular field has

produced in the past and the condition of soil preparation fertilizer, cultivation and season under which the crops were produced; so that he knows pretty well what he ought to expect in the way of production under existing conditions of soil preparation and cultivation, provided average climatic conditions prevail to harvest time. He knows also how the growing crop ought to look at different dates during the growing period. The conception of normal which a farmer has for a particular field or crop, that is, how it ought to look at a particular time and what it ought to yield under average conditions, is applicable to an entire neighborhood, county or state. The individual reporter is asked to represent his conception of normal by 100 and to express his estimate of the present condition of a crop as a percentage of normal. A particular advantage resulting from the use of the so-called "normal" as a standard for estimating crops is that it can be applied to all parts of the United States, where the average production in one section may be only 20 bushels of corn per acre, while in another it may be 60 bushels per acre, and the estimates for any year are strictly comparable with those of any other year.

Interpretation of Condition Reports

A condition report expressed as a percentage of normal is meaningless unless it is compared with other condition reports as of the same date for previous years, or unless it is interpreted in terms of yield per acre.

The numerical equivalent of the normal in terms of production is readily ascertained by calculation, the factors being the present condition of a crop, its average condition on the same date for a long series of years, and the average yield per acre for the same years.

Accuracy of Crop Estimates

The crop production forecasts are actually such figures that, based upon average conditions in past years, there is an even chance or probability that the final yield will be either above or below the figure forecast.

The best test which the Bureau has of the accuracy of its estimates of any crop is that afforded by the census reports of cotton ginned. All cotton is ginned and every bale that passes through the gins is reported to the Bureau of the Census, so that at the close of the season, in March, the total number of bales is known exactly. The estimate of the Bureau for last year's cotton crop, issued in December, 1915, was within $\frac{1}{4}$ of 1% of the number of bales reported by the census as having been ginned up to March 20, 1916.

Future of the Crop Reporting Service

Because of the increasing demand for details of crop production the Crop Reporting Service will undoubtedly become more highly specialized in the future and more attention will be paid to special crops and to the details of staple crops, such as estimating acreage, condition and production of horticultural varieties, or of crop yields in particular regions or zones; as early and late crops of potatoes, yellow and white corn, and corn grown for special purposes, such as silos, hogging down, and for canning; early and late varieties of apples and peaches, commercial production as distinguished from total production, various truck and fruit crops, and estimates and forecasts by counties or districts as well as by states. Efforts will also be made to improve methods of crop reporting through better coöperation and co-ordination between national, state and local organizations.



Green Things for City People

BY HARLEAN JAMES

Secretary Women's Civic League, Baltimore, Maryland

This is a personal account of things accomplished in gardening of vacant lots in a city not in this State. It is published because of its inspirational value to the work of beautifying and utilizing the waste spaces of our towns and villages.

THE site of Baltimore, from a topographical standpoint, lends itself to beauty. The rolling hills give vantage points of view over the broad expanse of the Chesapeake and over the suburbs bordering the Patapsco river as it ripples along its rocky bed to the Bay.

In the down-town districts of the city a few ancient and honorable trees stand witness to the fact that trees were once the fashion; but from very early days town residences have been built in solid rows, flush with the sidewalks (called *pavements* in Baltimore). Front yards are almost unknown and back yards are frequently covered with brick or cement and surrounded by the ubiquitous high board fences.

In the old part of the city the soil is light and sandy. Housekeepers have often added ashes to mitigate the mud and have thereby secured a mixture which hardly furnishes a fertile soil for grass, trees and shrubs.

Six years ago, when the Home Garden Committee of the Women's Civic League started its work, therefore, the members found few who loved plants and fewer who possessed any knowledge of their habits and requirements. Many who were inspired to beautify their back yards found it necessary to provide the soil in which the gardens were to grow. If you have never watched one-horse dump carts (the approved method of transportation through Baltimore cobble-stone alleys) bring their pitiful little mounds of earth into a back yard 20 x 100 feet, you can hardly realize the discouraging process of securing soil.

The obstacles to gardening had deterred most of the well-to-do from exerting serious efforts to create back yard

gardens. In the sections of small houses and smaller back yards there was even less incentive to horticultural effort.

The Home Garden Committee, after an inspection of the extensive vacant-lot gardens in Philadelphia, came home thrilled with plans for city farms. In most cities, the population pushes far out into the country, leaving numerous eddies of unused land in the form of vacant lots. Baltimore, the Committee found to its surprise, is the most congested city in the United States. It covers an area of thirty square miles on which it houses a population of 558,000 (census of 1910) and that, too, in two and three-story houses. Vacant lots are few. True, there is quite an expanse of vacant land along the southern waterfront of the "Middle Branch," but this area is not provided with transportation and is too far away from home to be easily available for vacant-lot gardens even if the soil were not very poor.

At the outset the Committee faced serious obstacles to establishing city farms on a large scale. Undaunted, however, it secured possession from a philanthropic landowner of an inside space of ground which had been salvaged by cutting short the back yards of the score of houses on either side. The lot was unfenced, covered with hillocks of ashes, tin cans and rubbish. On it were several clothes poles where the housekeepers were accustomed to stretch their lines and dry their clothes. With great unanimity they opposed the idea of giving up their common drying ground to useless gardens. The member of the city council from the district declared that he preferred a dump heap to a garden. The dump heap was sufficiently unprom-



Before

An unsightly and nonproductive city lot ising from a horticultural point of view. The prospective gardeners did not wish to garden and their legal representative in the council of the city fathers was determined to protect the rights of his constituents from this meddling invasion.

The land, however, was private property. The owners stood by their offer, though their private advice to the committee was that it would be better to abandon a plan, which, if tried, was sure to fail. But the Committee did not turn back. The land was fenced, the debris removed, the ground plowed and harrowed. The Street Cleaning Department contributed loads of street sweepings which, in 1910, still contained much manure.

Every house in the block was visited by the Committee. Finally one woman, less timid than her neighbors, consented to take a plot. Slowly, one by one, the families responded to the stimulus of plowed ground and highly-colored descriptions of the yields to be expected in garden truck.

The gardeners were, most of them, employes of the Baltimore and Ohio Railroad Company. Some had lived on farms in their youth, but many came of families of mechanics. The first simple crops of lettuce, radishes and onions yielded such prompt returns that the

gardeners were encouraged to try peas, corn, beans and even potatoes. From a farming standpoint the crops were rather meager that first year, but the gardeners learned the value of fertilization and cultivation of the soil. One enterprising tiller found the growth of her vegetables so stimulated by an application of pigeon manure that she industriously covered her plot with the winter's accumulation from a pen of pigeons. To her consternation the peas planted in that over-rich soil grew like Jack's proverbial beanstock, but, as she complained, "went all to vine," and produced no peas.

Now, after six years, the twenty-two plots are eagerly sought and there is always a waiting list. A second garden, larger in size, has been added. Flower borders brighten the central pathway and climbing roses and vines cover the fence. The small back yards are beautified by grass, vines and flowers. The alleys are kept clean, for they are now main-traveled highways between improved backyards and the community gardens. Tomatoes, egg plant, kale, cabbage and even strawberries have been added to the crops. Every inch of ground is used and a close succession of crops makes the small plots extremely productive. Almost any summer evening you may find gardeners busy with hoe and rake. Experiences are compared and stories of crop yields exchanged—who can say that they are never exaggerated? Sometimes friendly rivalry becomes sharp criticism, but, generally, the gardeners have too much pride in the whole plan to allow personal differences to endanger the success of what they are now pleased to call *their* gardens.

Having demonstrated that vacant-lot gardening could succeed in Baltimore, four years ago, the Committee undertook a barren-looking area in another section of South Baltimore. Several blocks of houses faced the street which ran in front of this land. Back of it were factories and switching yards. Across it was a gully which carried the overflow of surface water in wet weather.

The Committee had gained assurance from its first experience. Not so the residents. They were from Missouri. They had to be shown and they were not willing to walk a mile to see. A canvass of the houses brought no willing workers. Finally an English woman who had gardened at home consented to take quite a large plot. She promised to fence at her expense if she could have possession for a term of years. As land was plentiful and gardeners scarce the Committee granted her request. Her fence kept out the chickens (there is no law against the thrifty barn-yard fowl in Baltimore), but the boys! They played ball on a neighboring lot and it was really remarkable how many times the ball flew over the fence, which was made of posts and chicken wire, not calculated to withstand the weight of athletic youngsters climbing on it. A neighborhood feud developed. Mothers and fathers upheld the rights of their children to play on the particular spot they had selected, although there was room to move in any direction. Finally the Committee put up a backstop and the base ball games went merrily on.

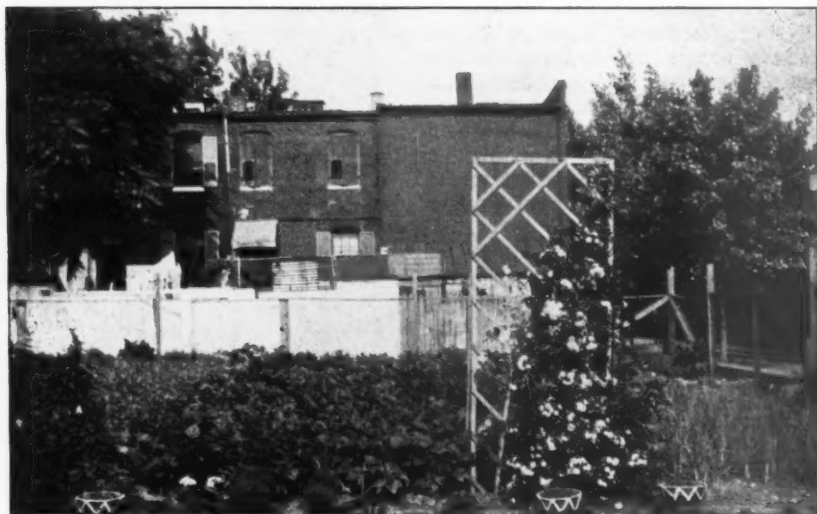
The garden has prospered. More ground has been put under cultivation

by the neighbors. Last year the Committee was entertained at a garden tea by the ladies of the block.

Wherever suitable vacant lots can be secured the Committee fosters gardens. The Gas & Electric Company has provided ground on its property for the use of its employees.

After the first year the gardeners were required to pay \$1 a year each for their plots. This makes the gardens self-supporting except for the cost of superintendence. The Committee employs a trained woman to oversee the gardening operations. On one of the larger tracts one gardener last year reported the following yield in terms that betrays the careful coöperation of his wife: 218 quarts of tomatoes (canned), 15 baskets of tomatoes sold, 50 pints of chili sauce, 75 bottles of catsup, 90 quarts of corn, 3 pecks corn (dried), 3 bushels lima beans (dried), 2 bushels lima beans sold, 200 dozen ears corn, 15 bushels early potatoes (late potato crop not harvested at the time), 7 bushels beets, 1½ bushels onions, 2 bushels string beans and a quantity of spring vegetables such as radishes, lettuce and early peas.

An interesting by-product has grown



After

A beautiful and productive lot made from the former unsightly and nonproductive one

out of the vacant lot gardens. This is the Playground-Park Garden. It may be explained that school gardens are seldom possible in Baltimore because so little space is available. The summer vacation is, at best, a problem of school gardens. So the Committee conceived the plan of coöperating with the Playground Association which has charge of the children in summer and with the Park Board which had plenty of land at its disposal. The Playground Association was willing but the Park Board was skeptical. The Park Superintendent said that children's gardens had been tried in one of the parks a few years ago but the children had grown tired and abandoned the plots so that the Park Board had finally to plow under the unsightly stubble patch and sow the ground in grass. The Park Board, however, finally consented to grant the use of a plot of ground sufficiently large for twenty children to cultivate plots. For this experiment 10 boys and 10 girls were selected. Few of the children knew anything of gardening for Baltimore is a city of brick, cobles and cement.

Under supervision the children tilled their plots. The garden was laid out with a central pathway bordered by sweet alyssum and zinnias. The outer edges were bordered by marigolds and blue corn flowers. The rows of vegetables were laid out by cords stretched across the entire garden. The spot was well selected. There was a private hedge on two sides and shrubbery on a third so that the effect was very similar to the walled-in or hedged-in kitchen gardens of the old plantations.

By a close succession of crops the garden always presented an attractive appearance, indeed the number of watchers soon far outnumbered the workers. By a curious reversal of the ordinarily accepted tradition, the boys preferred the decorative flowers and the girls the more humble but useful vegetables.

The experiment was declared a success. In the same park 75 children had plots last year. 125 have applied for the season of 1916 and they will be granted plots. The Playground Association, which has coöperated actively from the first, will furnish a garden assistant. The work is all done by the children but close supervision is necessary.

The Park Board and the Park Superintendents are converted. When the Conference of Charities & Corrections met in Baltimore in May, 1915, it only needed the enthusiastic praise of the visitors to fan the flame of their approval into positive advocacy of the children's gardens they had once despised.

The Home Garden Committee conducts a home garden contest, a window-box contest in which there is a class for schools, offers prizes for rose gardens, distributes penny packages of seed, holds an annual Flower Market and generally promotes gardens, but that, as Kipling says, is another story. The vacant lot gardens and the children's Playground-Park gardens are quite sufficient to justify its existence.



Common Sense in Dairy Inspection

BY ERNEST KELLY

1883-

In Charge of Market Milk Investigations, U. S. Department of Agriculture

IT is unnecessary to point out the important part milk plays in the average household. In the rearing of our young, in the care of our invalids, and in the nourishment of adults, milk is indispensable. It forms a relatively cheap and well-balanced ration, is usually a wholesome and healthful food and is readily digested by the average person.

Within the last few years certain complex changes have taken place in the method of milk production and distribution, due to the growth of our large cities and our discoveries along sanitary lines. To cope with these questions, systems of dairy inspection have been evolved. These systems have been devised principally for the protection of consumers, and it has sometimes happened that inspectors in their enthusiasm have made regulations, the practicability of which have not been sufficiently demonstrated. Dairy inspectors control, to a greater or lesser extent, the destiny of the great market-milk industry. They are in daily contact with the milk industry and it behooves them to study carefully the needs and problems of the dairy industry. In accomplishing any great results, there are two main methods of procedure which may be used either separately or in combination. The first method is mandatory and the second is educational. The mandatory method of obtaining results appeals to many because it apparently does, and in some cases actually does, accomplish certain quick results. This method, however, often causes friction, and results are very often not lasting because the milk producer or handler has been forced to do something against his wishes and perhaps without knowing the reason. In dairy inspection, a certain amount of mandatory regulation is necessary in cases where exceptionally bad conditions exist which must be corrected

at once to safeguard the public health. Contrary to this method are the results brought about by education. This method usually requires more time to reach certain ends, and for this reason, some who are impatient and not farsighted have spent their time endeavoring to accomplish results simply by legislation. The great advantage of educational work in the improvement of milk supplies is that it lessens friction between the producer and the inspector, and the results secured are usually lasting. This is not a theoretical idea, but is one proved by many years of experience in actual contact with problems of dairy sanitation. It is reasonable to suppose that if a dairyman is convinced of the value of any procedure, he will adopt it and make it one of his daily practices, whereas, if he is forced to adopt any methods against his will he is apt to follow them only when the inspector is nearby to watch him. Educational methods are not only the fairest, but in the long run the most effective means of correcting the minor defects of the dairy industry. However, they often have to be coupled with police powers.

Too much can not be said concerning the importance of the dairy inspector's personality in dealing with the problems with which he is in daily contact. The man who accomplishes most is the man with tact, a clear vision for big things, and most of all, a sense of perspective, or a quality for weighing true values. You can hold your finger up close before your eye and obscure many bigger things which are at a distance, but your sense of perspective tells you that in reality your finger is much smaller than many of the things which it conceals. So in dairy inspection, the administrative officer must learn to weigh things and to know which are vital and which are of minor importance.

A dairy inspector has not reached his goal when he receives his appointment and is clothed with authority for the correction of existing evils. On the contrary, he should have before him a life of study. No inspector can hope to be truly successful unless he goes into his work with a keen mind and resolves to study carefully the new problems which daily arise. It must not be forgotten that practically all features of dairy sanitation are entirely new to the dairy farmer. In fact, many of them are new to the sanitarian, and it is not good judgment to attempt to carry out regulations until definite knowledge is obtained as to their usefulness. One of the things which has held back dairy inspection to a certain extent has been that certain boards of health have formulated regulations based entirely on assumption which have not attained the test of practicability or usefulness. In dairy inspection, we are learning that some things are of much more importance than others. I might outline the things that we consider of greatest importance in view of the present knowledge which we have upon the subject. First of all, from an economic as well as from a sanitary standpoint, it is necessary that cattle producing milk for human consumption be healthy. The tuberculin test is our most reliable diagnostic agent for the discovery of tuberculosis in cattle, and inspectors generally would do well to agitate among their milk producers the question of obtaining clean herds. However, the tuberculin test alone will not stamp out tuberculosis unless the dairymen are taught to preserve the health of their herds after the diseased animals are removed. This is one of the reasons for which we should encourage clean stables which are supplied with an abundance of light and fresh air, and which are so built that the cows are kept comfortable and protected from the inclemencies of the weather. Another important thing is to see that the cow's udder and flanks are clean before milking is begun. Prob-

ably one of the most important factors in the production of market milk is the sterilization of utensils with which milk comes in contact. On the average farm, probably nothing is so little understood. Many farmers think that sterilization consists of washing the utensils until they are apparently clean, using water which is only warm enough to remove the dirt. By all odds, sterilization with steam is the most efficient method of eliminating bacterial contamination from dairy utensils. Water which is actually boiling will do this work, but the average farmer is very apt to use water which is not hot enough, and rests in a false sense of security. A steam boiler which furnishes steam for heating water and for the direct sterilization of the utensils is indispensable on a farm of any size. For the small farm, a steam sterilization system has been devised which is within the reach of any dairy farmer. It is believed that the use of this sterilizing apparatus will greatly reduce the bacteria count of our market milk and it will pay for itself in one season at least in eliminating much of the waste due to sour milk and milk which reaches the city in bad condition.* The final step in milk production, and one which is of paramount importance is efficient cooling and storage of the milk. No matter how carefully milk may be produced, if it is not properly cooled and held cold it can not go through our complex system of distribution and reach the consumer in good condition.

It is also vitally important to know that all persons producing or caring for milk are absolutely free from disease which might be carried by milk. The water supply of the farm must also be above suspicion. Other conditions must be such that manure and dirt are excluded from the milk.

It is probable that observance of these fundamental principles will result in the production of a clean, reasonably safe milk supply. In addition, there are a great number of minor details, the observance of which probably has less af-

*Full information concerning this sterilizer is contained in Farmers' Bulletin 748 which may be obtained upon application to the Secretary of Agriculture, Washington, D. C.

fect on the sanitary quality of the milk than is ordinarily supposed. The dairy inspector is not wise to insist on expensive equipment and tedious operations which do not improve the quality of the milk. I do not wish to be misunderstood on this question. I do not for a moment advocate the lessening of vigilance or letting down the bars where

tary milk, and that which deals with the economic problems which face the dairymen. Of course, from the inspector's standpoint, educational work along sanitary lines is of most importance, but if educational work along economic lines can accompany it, there will result greater coöperation between the health department and the milk producers. I



A CLEAN, UP-TO-DATE STABLE

the quality of the product is to be considered. The consumer is entitled to an adequate supply of safe milk, and the dairy inspector is employed to see that this result is obtained. However, the supply must be adequate as well as safe, and it behooves us to do all in our power to encourage rather than discourage the increased production of clean, wholesome market milk. The citizens of this country drink too little milk as it is, and we should all be better off if our average consumption of .6 of a pint per capita per day should be increased, provided a clean, safe milk is available.

As has been said before, the most effective system of dairy inspection is educational, and this educational work may be divided into two parts; that which deals with the production of sani-

have no sympathy with the health department that claims it is not called upon to do educational work along economic lines. Such a department is short sighted and has not got its own best interests at heart.

Educational work in dairy sanitation requires the observance of several rules. First of all, the inspector should be able not only to point out defects, but he should be competent to demonstrate remedies. Too often, the inspector issues orders for the abatement of certain conditions, but leaves the farmer in ignorance as to the best methods of accomplishing the desired results. By training and experience, the inspector should be fitted to show the farmer how to most easily correct the evils at his dairy. This will require more time

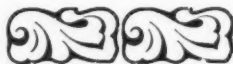
spent at the farms, but it is our experience that the average inspector makes his visits much too brief. The inspector should assume the attitude of a helper rather than that of a lawyer cross-examining a witness on the stand. In other words, he should be willing to stay long enough at the farm to actually demonstrate better methods.

In dealing with economic problems, the inspector can open up a vast field of usefulness. He can give instructions on feedings, breeding, care of manure, business systems, etc. Another way in which the inspector can help the farmer is by giving assistance in securing better markets for products which are produced in a careful manner. This has already been done in some cities where careful producers have been placed in touch with hospitals and other private trade where they would secure a market at an increased price.

The question naturally arises, "How may this educational work be done?" First of all, by personal visits to the farms, accompanied by demonstrations. When the inspector is alone with the dairyman he can talk with him in an intimate way and deal with the individual problems on that particular farm. Second, inspectors may organize community meetings, where illustrated lectures and demonstrations are given. At these meetings, a great number of people can be reached at one time, and fundamental principles may be dealt with. Local dairy associations may be formed for the discussion of subjects pertaining both to the sanitary and economic production of milk. I realize that the pursuance of this system will take more money, and the average health department is limited in both, but I believe that the time and the money will be well spent in view of the lasting results that will be secured, and my experience has been that when such careful and con-

structive work is carried on, the producer and the consumer will both give their hearty support to the work.

One of the needs of dairy-inspection work at the present time is that of better trained and better paid men for carrying on the work. There are many more well-trained, and efficient dairy inspectors than is ordinarily supposed, but, on the other hand, there are still some careless, dictatorial, inefficient men who work hardship on the dairy industry, and who place discredit on dairy inspection as a whole. It is difficult to get city councils and State legislatures to provide sufficient funds to pay the class of men who should be engaged in dairy-inspection work. If controlling bodies could only be made to realize that the wrong kind of inspectors may set the cause of clean milk back many years, they might open their hearts and pocketbooks so that this most important subject could be treated as it needs. Until health departments and dairy-inspection services are able to employ competent men who are safe from removal or interference except for inefficiency, we shall always have a chaotic and unsatisfactory state of affairs. Well equipped men hesitate to take up this work for fear that changing political conditions will oust them from their positions no matter how good work they may have been doing. Everything possible must be done to secure clean milk and to safeguard the consumer. There must be no relaxation of vigilance on the part of the inspector, but I anticipate that our inspection systems will be made more flexible so that we shall deal with vital things in a practical as well as in an efficient manner. Profit for the producer is absolutely necessary if clean milk is to be produced for the people in the cities, and it is well for us to have this in mind as we go about the work of dairy inspection.



The Woodlot and the Labor Problem

BY BRISTOW ADAMS

Editor, Cornell Agricultural Publications

ADVOCATES of the farm woodlot are beginning to pay especial heed to its economic side. For a long time they paid most attention to increasing its productivity; they made many investigations, and gave out reams of information, as to methods of growing more timber. Finally, the idea came uppermost that economic considerations were just as important as silvicultural questions, if not more important. Those who had studied the matter began to ask themselves "What does it profit a man to grow timber if he cannot dispose of that which he grows?" With that idea as a turning point, stress began to be laid on the problems of measuring and marketing of woodlot products.

It is not the purpose of the present discussion to go into either of these economic questions but, in a merely suggestive way, to direct attention to a sidelight in connection with the farm woodlot and its place in the employment of the farm labor.

The ordinary woodlot furnishes, or ought to furnish, a share of the farm building material and the bulk of the repair material; it should supply a large part, if not all, of the fuel on the average farm. In the State of New York with its magnificent sugar maples, the woodlot, in many localities, supplies the toothsome maple sugar and the syrup to accompany that other product in which New York stands supreme,—the buckwheat cake.

The connection of the farm woodlot with the farm labor problem lies in its ability to furnish work for men and teams during the winter when other farm business is slack. With its network of railroads, the State offers exceptional opportunity for the sale of railroad ties; with the large number of towns and cities there is almost everywhere a chance to sell fuel wood, not only for domestic purposes but for a

number of special manufacturing industries. The portable saw-mill man is constantly looking for sufficiently large bodies of timber to be turned into lumber. The farmer should receive adequate return for the products of the woodlot, though in many instances he does not fare well at the hands of the timber speculator. There is opportunity for coöperation by the owners of several woodlots, in making a sale to one saw-mill man, who might not be tempted by the limited supply at the disposal of the individual owner.

All of the work of getting out fire wood, railroad ties, fence posts, poles, and lumber, not only can be done in the winter time, but usually it can be done best during the cold season. This gives a chance for the farmer to employ his help around the calendar. He need not lose the services of exceptionally good men who are forced to go to the city in the winter months, in order that they may have year-round employment.



WINTER HARVESTING

Then, when the spring comes, with its call for greater farm activities and for more help, the farmer has a nucleus of his working force in his best hired men who have been kept busy during the winter in harvesting the woodlot crop.

It is not to be expected that the woodlot alone will give continuous employment, but it will serve to fill in admirably in connection with farm repairs and permanent improvements, which can be made in open winter weather.

Nor is it to be expected that, without any previous care or woodlot management, there will be enough timber on the ordinary farm timber tract to make it afford steady employment for farm labor. The woodlot has long been a neglected resource and part of the work at first would have to do with its silvicultural improvement, such as fencing it against too much grazing by stock, pro-

tecting it against fires, clearing out undesirable species or weed trees, and removing diseased, dead, or dying timber. There are ample facts to prove that a woodlot well managed pays excellent returns on the investment even when that investment includes the cost of land, the cost of planting, and compound interest to the time of the timber harvest. The woodlot is especially profitable where the timber occupies rough, sterile, or stony ground, unfit for the cultivation of the usual farm crops. And with an established tract of timber, in productive condition, there is additional chance for the farmer to "hold his hands,"—not to hold them in idleness, but to keep them busy at productive work in winter as well as in the two busy seasons of preparation and of harvest.



The Sugar Bush Furnishes Winter Employment
In the State of New York with its magnificent sugar maples, the woodlot is likely to give an opportunity for winter labor in supplying maple sugar and the maple syrup to accompany that other product in which New York stands supreme—the buckwheat cake

The War and the Manurial Value of Feeds

BY E. S. SAVAGE

Professor of Animal Husbandry, at Cornell University

ALL true farmers believe in a system of farming which is a little better than permanent agriculture. A system of permanent agriculture means one in which as much fertility is added to the soil each year as is taken from it in crops; thus the farm is permanent. Every good farmer believes in having his fields a little richer and better each year than they were the year before, and that means he must have added a little more fertility than he has taken away. If he does this he is carrying on a system which is more than permanent. Consequently one of the big questions is how to maintain fertility at the least expense. Some help on this question is the aim of this paper.

Nowhere has the Great War hit the farmer much harder than it has in the cost of fertilizers. The cost of nitrogen, per pound for the last ten years, has averaged about 18 cents, of phosphoric acid 4.5 cents and of potash 5 cents. Due to the war nitrogen now costs in an available form 20 to 25 cents per pound; phosphoric acid about 6 cents and potash is scarcely available at all. When quoted the price is given varying from 30 cents to 50 cents per pound, but it can scarcely be purchased at any price. Therefore anything at this time which will help keep up the fertility of the farm will be of great service. One source that must not be overlooked is the fertilizing constituents in feeds. Here is where the dairy farmer has an advantage over his neighbors, who are hay and grain farmers, because he is a big purchaser of feeds and has a lot of manure to use. From a manurial standpoint how can he get the most for his dollar in maintaining and building up the fertility of his farm? There are two main things that he must know, and concerning them he must put his knowledge into practice. First, he must know in which feeds he will get

the most fertility. Secondly, he must so care for the manure and urine that none of the fertility will be lost. We will endeavor to show first how much fertility there is in the common feeding stuffs and show how he may quickly compare feeds on this basis.

No one questions the importance of growing all the legume roughage that it is possible to grow. In this we have a happy combination of circumstances. On practically every dairy farm in the whole country it is possible to grow either clover or alfalfa. These hays make the foundation of the ration and are ideal roughages. In growing them the farmer gets one fertilizing constituent, nitrogen, to some extent free from an inexhaustible source, the air. The amount of nitrogen gathered in this way by large crops of legumes amounts to a great deal, and adds directly to the permanent value of the land at practically no cost to the farmer. In addition to roughage he may grow some grain but rarely does a farmer grow enough to feed his own cows. Therefore he must be familiar with the fertilizing constituents of the feeds that he must purchase to supplement those he raises.

When feed is first fed to an animal only that portion is available as a fertilizer which passes from the animal in the manure and urine. The percentage of each fertilizing constituent which will appear in the manure varies with the animal. With a mature horse, neither gaining nor losing live weight, all the nitrogen, phosphoric acid and potash in the feed must appear in the manure and urine otherwise the horse would of necessity gain in weight.

The percentage of nitrogen, phosphoric acid and potash recovered in the manure and urine from different animals as given by Henry and Morrison are as follows:

Proportion of Nitrogen, Phosphoric Acid
and Potash of Feed which is Voided
by Animal

	Nitrogen per ct.	Pho-phoric Acid and Potash per ct.
Horse at work ----	100.0	100.0
Fattening ox -----	96.1	97.7
Fattening sheep --	95.7	96.2
Fattening pig ----	85.3	96.0
Milch cow -----	75.5	89.7
Calf, fed milk ----	30.7	45.7

These percentages are higher than the amounts recovered in common practice. For calculation in the choice of feeds for a ration it has been deemed best to adopt the plan given in English law which governs the relations between the landlord and tenant. The following principles of English law as recommended and adopted by the Central Association of Agriculture and Tenant Right Valuers are quoted from Henry and Morrison:

"For all unused manure or that which has been recently applied to the land without a crop being grown thereafter, a credit of three-fourths of the total value of the phosphoric acid and potash in the feed is allowed. Because a greater loss of nitrogen commonly occurs in stored manure than in manure dropped in the fields by animals at pasture, a credit of 70 per cent of the total value of the nitrogen is allowed when the stock have been fed at pasture, and only 50 per cent when they have been fed in barn or yard.

"When one crop has been grown, since the application of the manure, a part of the fertility thereby being used up, the credit allowed is only half that stated above. It is realized that the beneficial effects of farm manure persist much longer than two years, but owing to the difficulties of checking records for a longer period, the compensation is not extended over a greater time. The principle of the English law, as set forth, should be drafted into every lease drawn between landlord and tenant in this country."

In accordance with these principles
the following table has been computed:
Manurial Values per Ton.

	Cost per ton	Manurial value per ton	Net cost per ton
Corn meal ----	\$31.	\$3.37	\$27.63
Hominy feed --	30.	4.62	25.38
Gluten feed --	31.	7.91	23.09
Flour wheat middlings ---	30.	5.13	24.87
Wheat bran ---	24.	7.81	16.19
Wheat mixed feed -----	25.	6.08	18.92
Ground oats --	33.	4.53	28.47
Ground barley--	35.	4.42	30.58
Malt sprouts --	28.	10.10	17.90
Brewers grains, dried -----	29.	8.37	20.63
Cottonseed meal, choice -----	38.	15.87	22.13
Linseed oil meal, old ---	35.	11.87	23.13
Beet pulp, dried	28.	3.01	24.09
Distillers' grains, dried -----	31.	9.43	21.57

The manurial values here given are those computed on the basis that a dairy cow returns in the urine and manure 50 per cent of the nitrogen and 75 per cent of the phosphoric acid and potash in the feed as fed. The value has been calculated by multiplying the pounds of nitrogen by 18 cents, the phosphoric acid by 4.5 cents and the potash by 5 cents.

Objection may be made that no such values are ever recovered in ordinary practice. Attention is therefore called again to the first table which says on good authority that 75.5 per cent of the nitrogen and 89.7 per cent of the phosphoric acid and potash is returned by a dairy cow, and then consider that the percentages 50 for nitrogen and 75 for phosphoric acid and potash are used from the law, and all men know how conservative are the figures written into law. Again we have used low prices as compared with the present prices for nitrogen, phosphoric acid and potash.

The point is that in the United States comparatively little attention has been given to things of this sort. We have

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Writing for Rural Folks

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BY E. J. WICKSON

Editor, Pacific Rural Press

ONE of the most striking manifestations of the new attitude of the public mind toward agriculture as a vocation is the new and insistent demand for the printed word about it. This manifestation is not only reflected in the improved contents and style of the distinctively agricultural publications, which is, of course, indicative of larger patronage, but it also explains the intrusion of agricultural subjects into the precincts of publications which a generation ago were held inviolably sacred to "literature" which had no taint of industry—except as the storyteller might need it as a stage upon which his "characters" might walk or the poet demand it as a post upon which he might hang new halos for the humanities.

Recently it has been said that publishers, who must keep watch for popwinks and nods like auctioneers, place their editors under bonds to fill their periodicals with not more than two-thirds alleged "literature" and one-third either "science" or "industry."

New books, as currently published, also demonstrate greatly increased attention to industrial subjects. Agriculture is dominantly chosen to satisfy the thirst for industrial publication because it is, fundamentally, the most important industry and because it holds the multitude either in actual or contemplated enlistment or investment as no other vocation does or can. One result of this popularization of agriculture is a greatly enlarged demand for agricultural writing.

There are at least three impulses imparted to the coming generation by this wonderful popularization of agriculture as a vocation:

- (1) To do farming and crop selling
- (2) To investigate or teach farming
- (3) To write about farming.

In this connection no contention will

be based upon this analysis of popular impulse except that these divisions of it are distinct and different, in point of view, habit of thought and attainment aimed at. One cannot combine them or associate them in his effort very far without danger of loss of efficiency. If he is doing farming and tries to teach also, he is apt to lose his crop. If he is a good investigator or teacher and tries to write agriculture (except in text books) in the same way that he lectures or conducts laboratory work, his readers may go to sleep and his publisher get cross. If he undertakes to write popular agriculture wholly on the basis of his farm or research work, he may mislead people by his narrowness. It will, of course, be admitted that every one engaged in any of these branches of effort should be able to write clearly and acceptably in a popular way, about his work and the relations of it and should strive, if necessary, to master this very important ability. He actually needs that power for the promotion and protection of his business and to discharge his duties of citizenship. Nevertheless, it must be contended that professional agricultural writing, to rise above the level of hack work and to constitute a satisfactory vocation, must have its own standards of efficiency and must command points of view, powers and capabilities distinctively its own. To discern and employ these to an extent which will command recognition for fitness and achievement, rests upon meeting requirements. Let them be called fundamental and superstructural.

Of fundamental requirements nothing need be said, for they are those which underlie all good work and good thought: to see clearly, to know accurately to reason truly and to possess constructive and illuminating imagination. Without these no one can well grow a plant, kill a bug, teach a class recognize

a first-section paper—nor can he write well of any of these things nor of anything.

Of the superstructural requirements for good agricultural writing, of the newspaper type, there are several requirements which seem to me, on the basis of long experience, to be indispensable:

(1) Freedom in written expression and joy in it. I am not sure how far this can be acquired, but I should hesitate to advise any one to take up newspaper work without some indication of its natural possession. If a young man "hates to write"; if he has had to cuff his head or shake out a school composition; if he "hates to write" when he knows the answer from home will bring a check; if he "hates to write" even when her parents take his sweetheart beyond the ends of telephone wires, I am inclined to think there is no hope for him in newspaper work. The joy in writing is the foundation of facility.

(2) Capacity for sustained writing. This is the requirement which I consider most essential and most likely to be lacking. I have tried all kinds of people, from college professors to country wiseacres, and found them unavailable for contributors even on their own special subjects, because they ran out so soon. College professors generally start out with grand articles, up-to-date suggestive, readable, but the third cast of the line is apt to bring up lecture notes. Country contributors, surrounded by outcroppings of good stuff, bathed in the atmosphere of the real thing, will send an article or two "worth the price of a year's subscription" to any reader, and then—a poem to spring. When you report the stuff unavailable, they pitifully reply: "I am sorry, but I cannot think of anything to write about. I think it must be the wrong time of the year." An editor can have no use for a "regular contributor" machine which will not keep running.

(3) Possession of the rural point of view. This is something different from the academic point of view. I cannot try to define it. It enables the agri-

cultural writer to look out of his readers' eyes at the things which please, puzzle or distress them. It is a power which can only be used to a limited extent in formal academic publications, but it is the ever-present help to the agricultural editor, and its result is the endearment which farmers feel for their favorite journals. It is largely optimistic and encouraging: it is also critical but not querulous. It is not consciously assumed: it is a genuine feeling in the writer's heart. It is born of country life and grows through association of the writer with those for whom he writes, and this association should be continuous.

(4) Smart writing is not necessary. Agriculture is serious business, and farmers are usually serious people. They enjoy clear statement. Like other people, however, they like joke columns, but these are generally scissored from the endless scroll of antiquity. Farmers also enjoy a picturesque statement, if it is not made merely for the sake of jocularity but has either approval or condemnation of something which seems worth discussion. It is therefore not so necessary that writing should be so "bright" in an agricultural publication as in those concerned with politics or general news. In the farmer's view, it is better to be right than funny.

Because of the growing demand for agricultural writing it is reasonable that a certain number of agricultural college men and women should look forward to it as a vocation. They should "try out" for it while in college, that they may determine whether they have a "call to write" or an earful of other noise. Systematic instruction helps the journalistic writer. But the number of these relations and their degree of pertinence to the purpose he has in mind, he must see for himself through his own powers of perception and conception and his personal sympathy and interest in the purposes and the people he desires to serve. As for the style of his writing, that lies between his God and his proofreader, and he should reverence both.

Why Not Drain?

BY C. B. LOUDENSLAGER, '17

IN PRACTICALLY every community there exists a farmer who seems to live on the fat of the land. His neighbors on the other hand farm under practically the same circumstances but find farming wholly unprofitable. Many a farm, I believe, has yielded its crop year after year in spite of, rather than because of the man who owns it.

Perhaps you have on your farm a swamp or pasture of little use. You may have tried to crop it and failed; you may have lost hope in it. You may consider it "waste land" whereas it is merely land the usefulness of which you have not yet discovered. Perhaps there may be a barren spot in one of your best fields which marks the location of a wet place. In very dry years this place may produce luxuriant growth, but in average years the growth is thin and sickly. We are all acquainted with these unsightly and unprofitable spots. There are too many of them in this state.

Not so long ago a president of the New York Drainage Association, while at South Byron, showed the gradual awakening of the American farmers to a realization of the importance of good drainage. But the farmers of this state have not awakened as much as they should have. During the ten year period from 1900 to 1910 the census figures show that the output of the manufactured tile increased 167 per cent. Such a growth is commendable. It indicates that the American farmer is progressive, but New York did not get it all, in fact she did not get her share. The greater part of this progress indicator went to the middle western states, to Indiana and Illinois. The tile drain is common, but not as common as it ought to be.

At the present time there are about 75,000,000 acres of swamp and overflowed lands in this country and more than 100,000,000 acres which need better drainage to bring them up to a sat-

isfactory crop producing condition. In New York alone there are 525,000 acres of such land. This is an area equal to three-fourths of the state of Rhode Island. Imagine what a harvest could be reaped from this vast amount of so-called waste land. One writer upon drainage says, "The drainage of the wet lands of American farms is more important and will develop greater wealth than would be possible by operating all the gold mines in the 48 states and Alaska."

But it is not my purpose to advocate large drainage propositions like those of the Montezuma Swamp near Batavia. I simply wish to encourage the common farmer and make him feel that it is to his best interest to drain those few square rods of unproductive land in one corner of his farm. I doubt whether there is a farm in the heavy crop producing area of New York which is not in need of some drainage.

It seems that a great many farmers fail to view an expenditure for drainage in the light of a business investment. They try to get as large an income as possible from their land without putting in a sufficient amount of capital. They consider every expense merely a reduction of profits. The Federal Department of Agriculture asserts very strongly that nothing in the way of scientific work can ever take the place of business management. Near Westfield, out in Chautauqua County where some of the best grapes in the United States are grown, lives Gus Schoenfelt. Thirty years ago he was a day laborer working as a florist on the same place. When the owner failed Gus Schoenfelt bought the business, but he did not have any house in which to live, for the creditors had taken it. The only available place was a small flat piece of land which at one time had been the bottom of Lake Erie. After he had purchased it, hardship and adversity seemed, to make certain the failure of the prop-

osition. But at last Gus Schoenfelt won out. By means of drainage he transformed a \$1,500 farm into a \$15,000 farm. Here is a net gain of ten times the original value and is just the sort of thing that any farmer can do.

Then there is another farm with which I am acquainted. It was owned by a man who was a splendid ideal for any one who desires to become shiftless. Under his management the buildings became rundown, swamps and hedgerows increased, and the soil through lack of drainage and proper cultivation had run together and hardened. It was seldom that half a crop of anything could be produced. Seven years ago this farm of 80 acres was purchased for \$1900. The new owner had only \$700 to pay down. The neighbors declared it a pity for him to waste his life upon such a farm. At first it seemed as if their predictions would come true. The old sunbaked fields refused to yield and at the end of the first year he was out his labor. He then laid out a systematic plan for draining. He took one field at a time. He cut down the brush, hauled away the stone piles, and then was obliged to borrow money to pay for the tiling. Since then he has said that he could well have afforded to have paid ten per cent interest on that money. Four years ago he was offered \$5,000 for the land. In the short time of three years he increased the value of his farm \$3,100. This success was due wholly to tile drainage.

Even though a farmer has to borrow money, it will still pay him to drain. The testimony of many owners who have done this same thing is that they have not only doubled and trebled their crops, but that the value of their land was increased from 50 to 300 per cent. Drainage authorities claim that the improved crops, under ordinary conditions, pay for the cost of drainage within two or three years. The question then is not, "Can the common farmer afford to drain?" It is rather, "Can the common farmer afford not to drain?" Prof. E. O. Fippin of this College says, "It is equally to be remembered that

the land in need of drainage is just the land which when drained, gives the largest crops. Some of the most productive lands of the country at the present time are the lands on which drainage is necessary."

At this point we are very apt to think that this applies merely to the large tracts of land where an entire farm, for example, is in need of drainage. If it applies to the large tracts it applies to the small ones. There is no excuse for overlooking a swampy area because it is small. In fact the smaller it is the more practical is its reclamation and the greater is the per cent of net profit. Those acquainted with Washington County may know of the Tamarac Swamp. It is about forty miles north of Albany and four miles east of Greenwich. John Wilson, who owns about five acres of it, merely dug a large ditch for drainage, with the result that this last year he obtained a very good corn crop in spite of the wet season. On the other hand his neighbor who owns the remaining fifteen acres of the swamp tried to pasture his portion with the result that one day a cow sunk out of sight in the bog. Then take a case here on the University farm. The field northeast of the cowbarns was drained about three years ago. To be sure crops could be produced before it was drained, but not the best. At the present time it is one of the best meadows on the farm. In many cases it is not the swampy land, which produces nothing, that returns the largest profits when it is drained, but the average land which does not yield its maximum on account of an excess of moisture.

As far back as I can remember there was a wet spot in the center of one of the best fields on my father's farm. It ran three-fourths the length of the field and naturally cut it right in two. We always plowed around this wet area. Nothing but mosquitoes grew here and we always had a good crop of them. Adjacent, the ground was always either sticky and gummy or hard and sunbaked. Two years ago we tile-drained

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Potato Bread

Boiled Potatoes Substituted for Part of Flour Makes an Appetizing Product as Nutritious as Ordinary Bread

ACCORDING to a recent report from the United States Department of Agriculture at Washington excellent bread can be made by using 3 pounds of boiled and mashed potato and $2\frac{1}{4}$ pounds of good bread flour, according to the baking specialists of the United States Department of Agriculture. The bread so compounded has a rich brown crust and tender and elastic crumb. It has an appetizing odor and a very agreeable taste, which is preferred by many to that of bread made wholly from flour. When made according to the directions given below, potato bread contains more mineral matter, fiber, and moisture, but otherwise, in composition and nutritive value, is practically the same as ordinary bread. Its higher moisture content helps to keep it fresh several days longer than ordinary bread. In localities where there is a surplus of potatoes or where they are very cheap, potato bread costs less to make than all-flour bread. This would prove an excellent way in which to utilize cull potatoes. Even, however, where the relative market prices of potatoes and flour are such that there is no economy in substituting potato for flour, the individual flavor and keeping quality of potato bread make it desirable as a variant in the family diet.

Potato bread as known abroad is made generally with potato flour, about 10 parts of this commonly being used with 90 parts of wheat flour or a mixture of rye and wheat flours. As potato flour and dried potato flakes are not accessible to the American housewife, the specialists conducted a series of successful experiments in using boiled potatoes with flour.

It was found that a mixture of boiled potatoes and wheat flour, in the proportions given in the accompanying receipts, gave a very desirable loaf, a

trifle smaller than that made from all flour, but wholesome and nutritious. Figured to a basis of equal moisture content, the boiled potato would represent 25 per cent and the flour 75 per cent of the mixture.

The following methods for making potato bread, worked out in the baking laboratory, are recommended:

Potato Bread—Straight Dough Method

For four one-pound loaves, the following ingredients are required:

3 pounds of boiled and peeled potatoes
 $2\frac{1}{4}$ pounds of good bread flour
3 level tablespoonfuls of sugar
 $1\frac{1}{2}$ level tablespoonfuls of salt
2 cakes of compressed yeast
4 tablespoonfuls of lukewarm water

Wash thoroughly and boil in their skins about 12 potatoes of medium size. Cook them until they are very tender. Drain, peel, and mash them while hot, being careful to leave no lumps. Allow the mashed potato to cool to 86 degrees Fahr. or until lukewarm. To 3 pounds (5 solidly packed $\frac{1}{2}$ -pint cupfuls) of the mashed potato, add the yeast, which has been rubbed smooth in a cup with 3 tablespoonfuls of lukewarm water. To get all the yeast, rinse the cup with the remaining tablespoonful of water and add this also to the potato. Next add the salt, the sugar, and about 4 ounces of the flour (1 scant half-pint of sifted flour). Mix thoroughly with the hand, but do not add any more water at this stage.

Cover the mixing bowl to avoid the formation of a crust on top and place out of the way of drafts to rise, where the temperature can not fall below 80 degrees Fahr. or be much higher than 88 degrees Fahr. Where the housewife has no thermometer, she should see that the dough in all the risings is kept moderately warm, but not up to blood heat. Any water used in mixing the dough should be moderately warm, but

by no means hot. This sponge, if kept at the proper temperature, should, after two hours, become quite light.

To this well-risen sponge, which now will be found to be quite soft, add the remainder of the flour, kneading thoroughly until a smooth and elastic dough has been formed. The dough must be very stiff, since the boiled potato contains a large amount of water which causes the dough to soften as it rises. Do not add water to the dough unless it is absolutely necessary to work in the flour. Set the dough back to rise again,—temperature at about 86 degrees Fahr.—until it has trebled in volume, which will require another hour or two. Then divide the dough into four approximately equal parts, reserving a tiny lump weighing 2 or 3 ounces for an "indicator." Shape the sample into a ball and press it into the bottom of a small tumbler with straight sides. The glass should be slightly warmed. Note the volume of the ball of dough in the tumbler and mark the glass at twice this volume.

Mold the four portions into loaves and place in greased pans which have been slightly warmed. Place the glass containing the "indicator" beside the pans and let all rise, under proper temperature, until the "indicator" shows that it has doubled in volume. Then place the loaves in the oven and bake in a good, steady heat (400 to 425 degrees Fahr.) for 45 minutes.

To test the oven, where no oven thermometer is at hand, a convenient method is to put a teaspoonful of flour in an earthen dish in the oven. If this flour becomes light brown evenly throughout in 5 minutes' time, the oven is right for bread baking. If the flour scorches in that time, the oven is too hot.

Potato Bread—Sponge Method

For four one-pound loaves are required:

3 pounds of boiled and peeled potatoes
2¼ pounds of good bread flour
3 level tablespoonfuls of sugar
1½ level tablespoonfuls of salt
1 cake of compressed yeast
4 tablespoonfuls of water

Boil, peel, and mash the potatoes as directed in the straight dough method. In the evening take 1½ pounds, or 2½ solidly packed half-pint cupfuls, of the cool mashed potato, add to it the salt, 4 ounces of flour (1 scant half-pint cupful) and the yeast rubbed smooth with the water, reserving one spoonful to rinse the cup.

In the morning add the remainder of the potato, the sugar, and the rest of the flour. Knead thoroughly until a smooth and very stiff dough is formed. After working the dough, set it to rise according to the directions given for the second rising under the straight dough method. Thereafter handle the dough exactly in the same way as is given under the straight dough method.

Potato Bread Rolls

Very good rolls can be made from a similar mixture of boiled potatoes and flour by adding shortening and sugar. The following proportions will yield one dozen small rolls:

8 ounces of boiled and peeled potatoes
6 ounces of sifted flour
1-3 cake of compressed yeast
3-4 level teaspoonful of salt
2 tablespoonfuls of lukewarm water
2 tablespoonfuls of sugar
2 tablespoonfuls of butter

Two tablespoonfuls of powdered milk, added to the dough, will greatly improve the quality of the rolls. Although milk itself or cream may be used, it must be borne in mind that they will increase the liquid content.

Boil, peel and mash the potatoes as directed for bread making. Add in order to this, the salt, the powdered milk (if used), the yeast rubbed smooth and mixed with the water, and lastly two tablespoonfuls of flour. Let this mixture stand at a temperature of about 86 degrees Fahr. until the dough begins to collapse. Add to this sponge the butter, the sugar, and the remainder of the flour and, if necessary, enough more flour to make a very stiff dough. Knead thoroughly and allow it to rise. Then knead lightly, form it into balls and place it in greased pans. Allow it to rise and then bake it.



ODDS AND ENDS FROM EVERYWHERE



The Broader Aspect

The measuring of farming in terms of yields and incomes introduces a dangerous standard. It is commonly assumed that State moneys for agriculture-education may be used only for "practical"—that is, for dollars-and-cents—results, and the emphasis is widely placed very exclusively on more alfalfa, more corn, more hogs, more fruit, on the two-blades-of-grass morals; and yet the highest good that can accrue to a State for the expenditure of its money is the raising up of a population less responsive to cash than to some other stimuli. The good physical support is indeed essential, but it is only the beginning of a process. I am conscious of a peculiar hardness in some of the agriculture-enterprises, with little real uplook; I hope that we may soon pass this cruder stage.—Liberty Hyde Bailey in *The Holy Earth*.

The Country Boy's Creed

I believe that the country which God made is more beautiful than the city which man made; the life out of doors and in touch with the earth is the natural life of man. I believe that work is work wherever I find it, but that work with Nature is more inspiring than work with the most intricate machinery. I believe that the dignity of labor depends not on what you do, but on how you do it; that opportunity comes of a boy on the farm as often as to a boy in the city, that life is larger and freer and happier on the farm than in the town, that my success depends not upon my location, but upon myself—not upon my dreams, but upon what I actually do; not upon luck, but upon pluck. I believe in working when you work, and in playing when you play, and in giving and demanding a square deal in every act of life.—Edwin Osgood Grover in the *County Agent*.

Forest Service and the Weather Bureau

In parts of the West the Forest Service is co-operating with the Weather Bureau in distributing weather forecasts to the settlers. By the use of Forest Service telephones many isolated sections are reached which could not otherwise receive the reports. Sheepmen owning bands of lambing ewes will be particularly benefited, as the warnings enable them to get their sheep under shelter and avoid the losses sometimes caused by late spring storms.

A Romance of Agriculture

Back in the seventies a Frenchman named Peller settled in California. He brought a single prune tree from France, which then produced more prunes than any other country. This lone tree was planted and prospered. From it came the prune industry of the Pacific Coast which supplies most of the needs of this continent and a considerable quantity to other countries. Such romances as this are not uncommon in agricultural development.—*National Stockman and Farmer*. Oct. 21, 1916, p. 791

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An Encouragement to Agriculture

The first big victory of the New York State Dairymen's League has been won. The *Countryman* wishes to join the dairymen in their jubilation. From start to finish the fight for higher prices during the next six months was one of order and dignity. There was no need for riot or disorderly movements. No, the dairymen just got together and figured out what the lowest price was for which they could produce milk. Then in the only business like manner they secured a representative to sell their product. When October first rolled around and former milk contracts had expired the only possible thing that the dairymen could do was to hold their product until the dealers met their representative and offered their demanded prices.

The time had come when the dairymen preferred to give away their products to the city consumers or if needs be throw it away rather than sell it to the middlemen whom they believed to be receiving all the profits. The consumers began to realize this and the distributors already knew it and therefore not many days elapsed before the smaller companies began to accept the league prices, which action was followed by the larger companies.

It may be that the production of milk will increase somewhat with these advanced prices but the consumption of milk should also be increased—in fact should be doubled. The *Countryman* ran an article last May by H. C. Troy, professor of dairy industry in this College, in which he discussed the food value of milk, showing that milk at even 10 cents a quart contained more food value at less cost than the ma-

jority of our food stuffs. Is it not time that the dairymen, represented by the Dairymen's League, conduct an advertising campaign bringing before the public the enormous food value of milk?

About the only time we read of milk is in connection with some of the many investigations in which experts have tried to trace diseases to milk. Such reports of investigations have filled our papers until many people think that if they drink a glass of milk today they will die tomorrow of tuberculosis, typhoid fever or infantile paralysis.

Welcome to Short Course Students

The famous short courses for winter students in agriculture will open November 11 and continue until February 1. From all indications this will be one of the most successful short course terms ever held and the attendance of those registered will most likely be record breaking.

The Dairy Department of the College, in which many of the short course students usually specialize, thinks this year an especially opportune time to enter that department. They are at present having more demands for trained men from that department than they can fill and they expect this demand will continue until spring.

Short course students, whatever be your department of specialization, we welcome you to this institution. You come in earnest. The College has much to give you and we believe that you have something to give the College—an enthusiasm for agriculture and an earnest desire for agricultural information.

Misplaced Education

Now that it is November and the county fairs have swung another circuit, *The Countryman* is moved to ask, "Is it fair to insist on enlightening country people who are out for a good time?"

We wonder if the true reformation of the country fair should not abolish the speaking tent along with the gambling stands, the vicious side shows, and other professional catch-penny devices. We suspect that the one is becoming as obnoxious in the eyes of the farmer and his family as are the others to the eye of the rural reformer who seeks to direct their pleasures along more natural lines.

People do not usually come to the fair to learn how to make more money or how to build up a permanent community happiness. They come to make a day of it, to forget their farms, to have fun. Community displays and competitions in cattle or jellies or crazy quilts are fun; community races—horses, men, or mules—are fun; meeting friends and talking things over, that is fun too. But sitting in a stuffy tent and listening to stuffy lectures is not fun.

Education is certainly fundamental to rural welfare but you can't educate people while the band is playing. So let's go watch the balloon go up and talk shop some other time.

Clubs Worth While

One of the features in the College which should be of special interest to the students is the various department clubs. These clubs, which meet once, twice or four times a month, as the case may be, have as speakers one of the professors in the department or some one outside of the College who is well versed on the subject of discussion. Meetings of this type offer to the student in the College unparalleled opportunity to get in closer touch with their professors and instructors and study agricultural problems of particular interest to them.

College Opportunities

In preparatory school, too frequently there is instilled into the student a sense of being driven on aimlessly over endless deserts and of being forced to climb over useless pyramids. There is a feeling engendered, often sub-conscious and not expressed, that any dodging of extra work is a cause for exultation. This is foolishness as seen from our position now, but does it not explain some of the manoeuvres that are practiced here at College? While the prescribed courses of study will turn out men fitted scholastically for their intended work, is there not vastly more need for well-rounded men?

There are so many of these helps lying about to be obtained for the asking that many of them are overlooked. Opportunity has open doors for us in more directions than will probably occur again in our lives. Attending interesting lectures on something apart from our line; listening to the best speakers of world-wide note when we have a moment of leisure; taking courses in other colleges as our time will permit; entering into student activities in their varied forms; trying to get the other fellow's view and appreciate it, learning that incidentally we can be of incalculable service by working together with sympathy and harmony,—all these duties we should feel, equally with scholarship, are incumbent upon us. The world is waiting for skilled men from the universities in scores of callings, but extends its heartiest greeting and most earnest coöperation to those with vital interests in humanity.

Read This Book

Wind and Weather is a small book put out by Scribners Brothers, New York. It is the first authorized and complete edition of the poems of L. H. Bailey, former Dean of this College. We reviewed it on page seventy-three of our October issue.

Former students of Bailey's time will need no urging to read this book, but to students now enrolled we say: Get it and read it. It will not tell you how to make more money but it ought to help you live a better rural life.

The Journal of Agriculture, published by ag. students of the University of California, begins this year in an enlarged attractive form—colored cover, catchy make-up, three column pages crammed with material readable and worth reading. Hail, brother! You're looking fine!



Campus Notes

University Opening Postponed

The University opened its fall term on October 9, instead of on September 25, as originally planned. This postponement was the result of a meeting of the President, members of the Board of Trustees, and Deans of the Faculties, held at Ithaca in August, and was a precautionary measure against a possible epidemic of infantile paralysis. The postponement was more on account of the danger of contagion from other cities than on account of a prevalence of the disease here.

Ithaca, however, did not altogether escape the scourge. Nineteen cases were reported during the summer and four of these cases were fatal. At one time the town was placed in quarantine and the University turned over the contagion ward of the Infirmary to the city authorities as an aid to getting the epidemic under control. No new cases have been reported during the past four weeks.

Frank Thilly, Jr., the twelve year old son of Frank Thilly, Dean of the College of Arts and Sciences, was one of the local victims of the plague. One student, William Kellog, '18, and a former student, Charles B. Shakespeare, ex-'15, were among the victims of the disease in Philadelphia and Interlaken.

One of the two weeks lost by the postponement will be made up by shortening the Christmas recess, omitting the holiday on Founders' Day and curtailing the recess between the two terms. The re-

maining week will be gained by postponing Commencement. The revised calendar for the year is as follows:

First Term Instruction Began, Thursday, October 12.

Last Day Payment Tuition, Tuesday, October 31.

Thanksgiving Day, Thursday, November 30.

Christmas Recess, December 22-January 2.

Block Week, February 6-16.

Second Term Registration, Saturday, February 17th.

Instruction Begins, Monday, February 19.

Last Day Payment Tuition, Friday, March 9.

Spring Recess, April 4-12.

Navy Day, Saturday, May 26.

Term Examinations Begin, Wednesday, June 13.

Commencement, Wednesday, June 27.

President Welcomes 1920

Before an audience of 2500 undergraduates, President Schurman delivered his annual address of welcome to the entering class on October 12. The meeting was held on Alumni Field, in pursuance of the University policy of avoiding large gatherings indoors until all possibility of infection from infantile paralysis is passed.

The President made his customary statement as to the fall enrollment. There are now enrolled in the University 3,310 old students—an increase of 187 over last year—and 1,436 new students—a decrease of 64. This may be due to the postponed opening of the

University. The total attendance, 4,476, shows an increase of 123 over last year at the same time.

The President proceeded to acquaint the undergraduates with the exact situation in regard to infantile paralysis, set forth in another note in this department, and to urge upon them high standards of hygiene. In particular he recommended a widespread participation in athletics and eulogized the work of the military department in building manhood and fostering preparedness.

Military Activity

Under the new regulations, about two thousand underclassmen are now drilling under the direction of Captain Thompson. In order to accommodate this increased enrollment, sixteen companies of sixteen squads each have been formed, thus bringing all of the organizations up to full war strength. In order to facilitate the work, drill will be held five days a week instead of three as formerly. The various colleges will be divided into two groups so that one will work Mondays, Wednesdays and Fridays, and the other Tuesdays, Thursdays and Fridays. Practical work will be emphasized more than ever this year, despite the probability that the new Armory can not be used before spring. Short out-door hikes will be continued throughout the winter whenever the weather permits.

About seventy undergraduates of Cornell attended the Plattsburg Summer Camp, and took the hike of 115 miles back to Ithaca by way of Luzerne. The distance was covered in twelve days.

Many Cornell men are affected by the ruling of the War Department denying leave of absence to students enlisted with the National Guard encamped on the Mexican border.

Cornell Publications Free

Word has just been given to the authorities of the College that two swindlers are working in the neighborhood of Rich-

field Springs, collecting money from farmers to pay postage on the Cornell Agricultural publications. It is understood that they give a cheap premium; and then collect 99 cents to defray the postage on the Cornell publications for three years. While the sharpers have apparently been at work for some time they have sent no names to the College, probably because to have done so would have exposed their game.

The College authorities designate them as swindlers because the Cornell publications are sent free on application to all residents of the state. If any one wishes to receive publications regularly, his name will be placed on the mailing list for any subject in which he is interested. This applies also to the women of the State for publications which have to do with problems of the farm home. The College authorities want it plainly understood that the published information gathered by its staff of scientists is at the service of the State without cost, even for postage. Most of the publications are issued in coöperation with the United States Department of Agriculture and are therefore sent under frank so that postage would not be required under any circumstances.

Doctor Galloway's New Position

Doctor B. T. Galloway, former Dean of the New York State College of Agriculture, is now with the Bureau of Plant Industry, United States Department of Agriculture. He is engaged in an individual investigation on the importation of foreign seeds and plants. He recently made an inspection trip through Canada from East to West and spent the latter part of the summer in investigations in the Pacific Coast states.

Doctor Galloway's official title is "Plant Pathologist and Plant Introducer." He looks into the probable usefulness of foreign species of plants and passes upon them from a quarantine standpoint. Many serious insect and fungus pests have been brought into this country on foreign stock and it is the

plan of the Department to minimize this danger, deriving maximum benefit from the introduction of outside species and their adaptation to American conditions.

New Index System For Reading Courses

In the offices of
the Supervisor of
Reading Courses
for the Farm

there has lately been placed a flat-topped desk with trays of index cards set flush with the surface. This new filing system furnished interesting instance of the modern business facilities which the College is employing to keep in touch with the thousand of New Yorkers who draw upon its fund of information. A person seated at this desk has at his very finger-tips twenty thousand cards, each of which represents an individual corresponding with the Extension Department on matters covered in the Cornell Reading Courses.

It is not simply a mailing list. In the words of the Supervisor, "It is a classroom of twenty thousand students." Those pupils who do not return answers are "busted out" by a system whereby the index is kept three years old. At the beginning of each year a new section is started from the names of those who write into the department day by

day. This section in time becomes "last year" and the "year before last." If during this time the correspondent has not by another reply or request placed his name in the files of the succeeding years, the lessons are discontinued. The interest which the lessons arouse is shown by the small percentage who fail to keep up their reading.

Just to show how rapidly the enrollment piles up, take this year. Two weeks after the opening of the 1916 file, five hundred cards were made out and entered. To date the total is close to nine thousand. Divide this by three and multiply by four to get an idea of what it will be by the end of the year.

In additions to the persons taught through this list, five hundred persons are enrolled in the Advanced Reading Courses. In this advanced work the smaller number of students makes it possible for the extension staff to correct, grade and return the papers, thus intensifying the instruction and bringing the student into closer human touch with the College.

The department is especially anxious to enroll former students in its Reading Courses. They believe that it helps keep the alumni in touch with the College and furnishes them with practical, up-to-date information.



A very extensive drainage project is now in progress on the Wheatfield Farms, owned by the Dold Packing Company and situated near Tonawanda. Professor B. B. Robb is supervising the construction of the drains, which consist of tile laid thirty feet apart. The work is now progressing with the aid of two large ditching machines at the rate of five thousand feet a day. When completed the undertaking will cover about six hundred acres.

College Floats in Ithaca Parade

Four floats represented the College of Agriculture in an Industrial Parade, passing through the streets of Ithaca to the fair grounds on the evening of October 12, the Thursday of Ithaca Fair Week.

The Department of Poultry Industry had two large maps mounted on a revolving platform, one of New York State and the other of Ithaca. Various colored lights indicated the extent of the poultry industry in all parts of the state and showed that Tompkins County and Ithaca were well up in this line. Animal Husbandry displayed living examples of fine dairy cattle, horses and swine on a horse-drawn wagon and Floriculture was represented by an automobile tastefully massed with flowers.

The *Countryman* float was a box-like affair, mysteriously moved by some force within, the partially revealed wheels of which are said to have borne a resemblance to the wheels of the Business Manager's private Ford. The front of this box was made up in the form of the *Countryman* cover and the sides into the form of an open copy of an issue, bearing matter in behalf of local advertisers. The back was simply labeled with the name of the paper.

Almost two hundred floats were entered in the parade, all Ithaca attended, and an enjoyable time was had by all.

The Cornell Study Club of Cincinnati motored to Ithaca on October 12 for an inspection tour of the agricultural campus. The party filled seven automobiles. They arrived early in the morning and were at once taken in charge by Royal Gilkey, Supervisor of Reading Courses. They were shown as much of the workings of the College as is possible to see in so short a time. The visitors were particularly interested in the Department of Dairy Industry and spent much of their time there.

The party was the guest of the Home Economics Department for luncheon in one of the model apartments of the Home Economics Building. Short addresses were made by Misses Van Rens-

selaer, Nye and Titsworth, of the department and by Professor Gilkey. After luncheon the party resumed its tour of the campus and in the evening started on its way homeward.

Movies For Farm Bureaus

The College of Agriculture has secured about 240 feet of good film of the demonstration meeting held at Hilton last summer by the Monroe County Farm Bureau. The film shows the crowd, the arrival of the delegation from the Niagara County Farm Bureau, the dusting of apple trees for scab and codlin moth, and plowing with seven different makes of tractors.

The office of the State Leader plans to loan this film, all ready to be shown on any moving picture machine, to any farm bureau in order of application. The only cost will be that of expressage, which is very slight. It is planned to have the film run at local moving picture houses as an inducement to attendance at farm bureau meetings.

Farm Bureau News

The August and September issues of the *Farm Bureau News*, issued by the Office of the State Leader here at Cornell, give interesting indication of the present scope and rapid growth of farm bureau work in New York State. Over three thousand coöperative field tests have been run this summer. The bureaus of fourteen counties have furnished the Wicks Dairy Products Investigation Committee with a large amount of data bearing upon the dairy situation. Work has also been done on oat smut and the home economics extension work has been broadened to the extent of three new counties.

In the September *News* there is an article on "What Will a County Farm Bureau Cost?". The estimated annual cost is \$3,980 and the incomes available from various sources are estimated at \$4,000.

(Continued on page 134)

FORMER STUDENT NOTES



Morgan

'09, B. S. A.—Ervin Getman McCloskey is the name inscribed on the "shingles" that he carried away from Cornell—one of which, by the way, certifies that he was Business Manager of this *Countryman* in his senior year. But down in Baltimore County, Maryland, where he runs an Agricultural High School, he is just "Mr. Mack." That is the kind of a schoolmaster he is, and that goes a long way toward explaining why his little high school is so human and useful.

When the school was started, in 1909, most of its pedagogic ideas were new and somewhat startling, but now that its equipment, courses and methods have been repeated in all parts of the country, an enumeration of its features might seem prosaic to the up-to-date. It is nothing new nowadays for a rural school to teach four years of rural vocations; nothing new for them to do community work;

nothing especially new for them to give Shakespearian plays or hold country commencements out of doors. Such work has lost its novelty and news value. By the same token, it has per-

haps gained in vigor and actual value. It is standing on its own feet and doing its own work quietly and well, has fixed and accepted a part of the community as the church or store or farmer's club.

There is still that about this little high school, however, which distinguishes it from others of the sort. Even to one such as the writer, who lives in the community and who has been in intimate touch with the institution, this distinction is hard to make clear; it is more real than apparent. Perhaps the nearest I can come to describing it, is to say that the school has a simple, kindly personality. The students run their own affairs by a comprehensive honor system; the faculty are thus set free from police duty and the necessity of cultivating a crust.

And this spirit of friendliness has been extended to include the countryside. The

school works with the people by their first names and they respond in kind. They use the building for their dances and prayer meetings; they flock to the annual Corn Congress and to all the



E. G. McCloskey

Former Business Manager *The Cornell Countryman*

other school affairs; they drop in during school hours to talk things over with "Mr. Mack," to help and be helped. The community is getting *better* all the time, not only in material things, but also in those more subtle things deep within itself, where it really lives.

I have said little of the man himself, preferring to try to tell of him through his work. When he graduated from Cornell, he was twenty-two years old. He returned to his home farm, at Hamburg, and was successful in breeding and raising a superior strain of potatoes. In 1912 he went to Maryland to assume the vice-principalship of the Agricultural High School, near Sparks, working under B. H. Crocheron, '08, who started the school. In 1913, when Crocheron was called to California as State Leader of the Smith-Lever work, McCloskey assumed the principalship. In September, 1911, he was married to Miss Minnie Howard, a Kentucky girl. They now have a three year old daughter.

'72, B. S. A.—Wing R. Smith writes that he has been breeding Holstein-Friesian cattle ever since leaving Cornell. He has a farm near Syracuse where he raises soilage crops, such as rye, millet, beans and alfalfa. "Everything on my farm," he says, "is subservient to the cattle."

'86, C. E.—Charles H. Baker's address is Mohegan Lake, where he is specializing in purebred Holsteins and White Leghorns.

'83, B. S. A.—G. D. Bull farmed until 1897, when he returned to Cornell for special work in horticulture and dairying. The following year he went to China to collect plants for the federal Department of Agriculture and from there to the Philippines where he did work of an educational nature. He spent 1903 in travelling, returning to the States in 1904 to take a position as Farm Superintendent at Lake Placid. The following year he accepted a like position at Bedford Hills, in which position he still remains.

'91, Sp.—James M. Drew left college in his junior year to run the home farm. In 1893 he accepted an instructorship in the Minnesota School of Agriculture and in 1905 was made Registrar of that institution. This year he is to have charge of the farmers' reading courses. Mrs. Drew (née Elsie Salisbury) is also a member of the class of '91. There are two grown daughters, one of whom has received her Masters degree in the University of Chicago and the other, a junior in the same institution, has recently been awarded a hundred dollar scholarship on the strength of her record as one of the two best students. "Needless to say," Mr. Drew adds, "the daughters take after their mother."

'96, W. C.—Since 1908, when he left creamery business, Wallace G. Comstock has been managing his father's farm at Clinton. The farm raises all kinds of fruit, averages 50 bushels of oats to the acre and 200-300 bushels of potatoes. It also supplies ensilage for a herd of pure bred Holsteins, some of which have made large records. Mr. Comstock writes that he hopes some day to have a small herd that will "make around 30 pounds of butter in seven days and give 40 quarts of milk a day."

'97, M. S. A.—H. P. Gould has been for fifteen years engaged in pomological investigation work for the United States Department of Agriculture. His work has been chiefly directed along the lines of varietal adaptability and cultural problems.

'97, W. C.—W. J. Bell, who specialized in dairying in the time of Professor Roberts, writes that up until six years ago he had spent most of his time in creamery work. At this time he purchased a 274 acre farm on the St. Lawrence River, which he now owns free of incumbrances. "I do not mean I paid for it in the six years," he explains, "for I had worked before buying the property." The farm raises good yields of corn, oats, barley and potatoes and supports 70 head of cattle.

(Continued on page 142)



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- | | |
|--|---|
| 1892 Madison, Wis.—Louis Brahe, Washington, Ia. | 1904 St. Louis, Mo.—J. C. Joslin, Winsted, Minn. |
| 1893 Dubuque, Ia.—C. W. Smith, Colvin's Park, Ill. | World's Fair Grand Prize Butter. |
| 1895 Rockford, Ill.—F. C. Oltrogge, Tripoli, Ia. | 1906 Chicago, Ill.—A. Carlson, Rush City, Minn. |
| 1896 Cedar Rapids, Ia.—Thomas Milton, St. Paul, Minn. | 1907 Chicago, Ill.—A. Lindblad, North Branch, Minn. |
| 1897 Owatonna, Minn.—H. N. Miller, Randall, Ia. | 1908 St. Paul, Minn.—J. C. Past, Hector, Minn. |
| 1898 Toneka, Kan.—Samuel Haugdahl, New Sweden, Minn. | 1909 Milwaukee, Wis.—A. J. Anderson, Otisco, Minn. |
| 1899 Sioux Falls, S. D.—A. W. McCall, Creson, Ia. | 1910 Chicago, Ill.—Albert Camp, Owatonna, Minn. |
| 1900 Lincoln, Neb.—H. T. Sondergaard, Leitchfield, Minn. | 1911 Chicago, Ill.—A. J. Anderson, Otisco, Minn. |
| 1901 St. Paul, Minn.—E. O. Quenvold, Owatonna, Minn. | 1912 Chicago, Ill.—A. L. Radke, Plato, Minn. |
| 1902 Milwaukee, Wis.—E. L. Duxbury, Green Bay, Wis. | 1913 Chicago, Ill.—O. N. Petersen, Rapidan, Minn. |
| 1904 St. Louis, Mo.—L. S. Taylor, Glenville, Minn. | 1914 Chicago, Ill.—Thomas Sadler, Oelwein, Ia. |
| | 1915 Mason City, Ia.—Emil G. Oman, Pelano, Minn. |

(There were no national conventions in 1894, 1903 and 1905.)

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Campus Notes

(Continued from page 130)

New Rain Gauge For Weather Bureau Frequenters of the ag. campus have perhaps noticed a shining new rain gauge replacing the rather weather-worn affair which formerly adorned the little Weather Bureau platform in front of the *Countryman* office. This new gauge is of improved pattern known as the Tipping Bucket Rain Gauge, and is extremely interesting in construction. Not only does it collect the rain and record the rainfall to the hundredth-inch, but transmits the result to the Weather Bureau office on the top floor of Robert's Hall.

The rain falls into a funnel-shaped pan on top of the apparatus and drips down into one of the small cups of the tipping bucket, suspended on a pivot underneath. As soon as the cup contains a hundredth inch of water it automatically dumps its contents into a large pan below and another cup swings into place under the mouth of the funnel. Every time a cup dumps it moves a spring which breaks a circuit, thus transmitting the record to the Bureau.

Professor Anna B. Comstock recently went to Washington to give two talks before the Primary Teachers' Association of the Washington Public Schools. She spoke on her work in Nature Study.

Professor Bristow Adams, Editor of the Cornell Agricultural Publications, addressed the convention of the Central New York Newspapers' Association on "The State Agricultural College and the Rural Paper." The Association convened in Syracuse on October 14. During the summer Professor Adams was in Washington, employed by the Forest Service in special work.

The annual transcontinental trip of the prize winners of the High School Agricultural Clubs of California left Berkeley, California, on October 15 and

reached Rochester early in the morning of October 26. Lewis A. Toan, Farm Bureau Manager of Monroe County, conducted the party on an inspection tour of notable farms in the vicinity. The party left at 6:45 the same evening, bound for Boston. Thirty prize-winners are taking the nine thousand mile swing around the circuit this year, under guidance of B. H. Crocheron, '08, State Leader of California.

R. N. Chapman, former Assistant in Biology, has returned to the University of Minnesota to accept an instructorship in Zoology.

P. A. Claassen, Assistant in Entomology during the past year, has returned to his alma mater, Kansas State University, as substitute teacher of Entomology during the absence of Professor H. B. Hungerford, who is spending a leave of absence on special work here at Cornell. Mr. Claassen will return in June and continue his graduate work.

Many of the students who remained in Ithaca during the summer found pleasure and profitable employment as walking gentlemen and members of howling mobs in the Ithaca-made Pathé moving pictures now being taken by Wharton Brothers at the old Park grounds. Mrs. Vernon Castle is being starred in a serial picture, "Patria," and Grace Darling and Harry Fox lead in the portrayal of the wonderful adventures of "Beatrice Fairfax."

Miss Anna C. Stryke, who spent last year in Colorado, has resumed her work as Instructor in the Department of Entomology.

A large portion of that part of the recreation field immediately in front of Roberts Halls has been plowed up and is being reseeded with the idea of getting a more uniform sod.

(Continued on page 136)



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Campus Notes

(Continued from page 134)

E. A. Overholser, Instructor in Pomology, has been compelled by sickness to return to his home for a vacation. It is expected that he will be back at his desk before November first.

Messrs. Rees, Peck, Heinicke and Car-rack of the Pomology Department recently returned from Port Bryon, where they were engaged in the second year of a rejuvenation experiment on an old orchard. Different methods of rejuvenation are being tried on various portions of the orchard and the results observed and compared.

Professor R. W. Rees, who comes from the Massachusetts Agricultural College, has replaced Professor H. B. Knapp as Extension Professor of Pomology. Professor Knapp has gone to Cobleskill as Director of the Schoharie Agricultural School.

The annual Fruit Show of the Pomology Department will be held in Roberts Hall during the early part of November. Specimens of fruit from all parts of New York and other states will be shown.

C. H. Hadley, Investigator in Entomology, has resigned to accept a position in the Extension Department of the Pennsylvania State College of Agriculture. His place in the Department of Entomology will be filled by H. H. Knight, who has been doing graduate work here for the past two years.

Doctor Robert Matheson is the father of a baby boy.

Prof. C. B. Hutchinson of the University of Missouri has been appointed Professor of Plant Breeding in the College of Agriculture.

The will of the late Charles E. Green, of Schuylerville, N. Y., leaves about \$22,000 to Cornell University, subject

to a life interest of his widow. His bequest is to be administered by the University in providing aid for Cornell students from Saratoga County.

The following women have been elected to Sedowa, the women's senior agricultural honorary society: Anna Bristol, Helen Kirkendall, Mabel Baldwin, Helen Adams, Julia Aronson, Mary Albertson, Marion Hess, and Alice Blinn.

D. U. Durham, '17, W. B. Eastman, '17 and R. B. Markham, '17, composed the Cornell Judging Team that went to Springfield, Massachusetts, on October 12, to compete for Intercollegiate Championship in the stock judging contest of the National Dairy Show. Professor H. H. Wing accompanied the team.

The new Armory will not be ready for occupancy until the end of the present scholastic year. One tower is still unfinished, the end windows have not yet been put in and the floor is not leveled. The grading of the grounds around the Armory is rapidly approaching completion.

A new course in Rural Engineering, number two, Farm Power Machinery, is being given this term by Mr. L. E. Hazen. This year the course will deal entirely with automobiles and farm tractors but it is expected that it will later be broadened to include a consideration of stationary gas engines.

D. S. Fox, Instructor in Farm Management, has accepted a position as assistant in the Experiment Station of the state of Montana.

The department of farm practice is requiring both a written statement of the farm experience of the incoming freshman and also an actual test by appointment to illustrate the practical value of such knowledge.

(Continued on page 146)



Victrola IV \$15



Victrola VI, \$25

Hickey's Lyceum Music Store

"The Home of the Victrola in Ithaca"

105-109 South Cayuga Street

WE have supplied the students of Cornell with musical goods of every description for over 25 years. We are again ready this year to meet your demands for everything musical including, Victrolas, Pianos, Stringed Instruments and Supplies, Drum Outfits and up-to-the-minute Song Hits. Drop in some time.



Where you saw it will help you, them and us

ATLAS== Distillers' GRAINS

Where Will Your Farm Be In Twenty Years ?

The growing tendency toward making farms permanent has caused the progressive farmer and dairyman to look to the manurial values of the feeds he uses for his stock. Nitrogen is the much sought element in any soil and, therefore the feed which nourishes the best and at the same time will produce the greatest amount of nitrogen in the manure is the most valuable.

30% Protein—10% Fat

The above is a guaranteed analysis of "ATLAS" feeds. Their value as milk and butter fat producers is beyond question. Their high protein content means a large amount of nitrogen voided by the animal that eats them. The increased value of such manure with a high nitrogen content can easily be computed. The enrichment it gives the soil to which it is applied is much greater than manures from ordinary grain feed.

Combining the value of "ATLAS" as a milk and butter fat producing feed with its manurial qualities, there is but one deduction. FEED ATLAS DISTILLERS' GRAINS. Ask your dealer or write for full particulars and analyses.

ATLAS Feed & Milling Co.

PEORIA

ILLINOIS

The War and the Manurial Value of Feeds

(Continued from page 116)

practiced a sort of mining of the soil. We must now turn to these other and better ways of keeping up fertility. The above shows very conclusively that in purchasing feeds the most fertility is purchased in feeds carrying large amounts of protein.

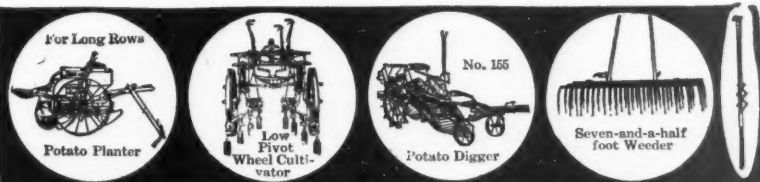
Concerning the care of the manure and urine, again it must be emphasized that more than half of the manurial value of each feed is in the nitrogen. Practically all of the nitrogen of the feed is returned in the urine. Therefore all the urine must be absorbed and the manure so kept that no fermentation or heating can take place. The best method is to spread it over the fields every day. In case this is not possible it is at least possible to prevent leaching of the pile. Heating is hard to control, but tramping it down hard will help. If the manure can be stored in a place where it can be tramped hard by animals very little heating will take place. This might be accomplished with young stock.

"The country paper is the nucleus of community life, and the country must measure its progress by the community. The country editor exerts more of an influence on the community than any other agency. He is the advance agent of its civic progress, the stimulus of its social life, the big brother of the church, the patron saint of the school."

—MERLE THORPE.

When you see the name of an article you want to buy advertised in The Cornell Countryman, and you can't obtain that article from your local dealer, write to us about it. We will help you to get it.

In writing to advertisers please mention The Cornell Countryman



Practical Tools for Farm, Garden and Orchard Work

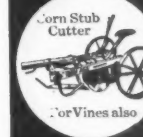
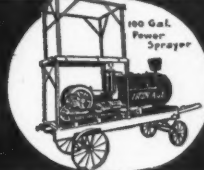
Potato Machinery. Planters put one piece (and one only) in every space. Save seed and save ground. All your work counts. Even spacing, perfect placing so seed won't roll, uniform depth, proper covering. With or without fertilizer distributor. No injury to seed.

Potato Diggers, four styles to choose from.

Cultivating Tools. Two horse or one, riding or walking, horse hoes, harrows, disk attachments, etc., equipped any way to suit your ground and crop.

Spraying Machinery. For potatoes and other row crops, to cover four or six rows (including one to cover underside of leaves), bucket, barrel and power sprayers, in various sizes and equipment, for home, garden and orchard.

Garden Tools. 38 or more styles and combinations to do any kind of home, farm or market garden work—sowing seed, hoeing, cultivating, weeding, ridging growing crops, opening and covering furrows, distributing fertilizer, etc.



IRON AGE

lines include many other tools such as **Weeders** with or without Seeding Attachments, several sizes, **Corn Stub Cutters**, that cut stubs in five pieces and throw them out on top. **Tree Trimmers**, **Asparagus Knives**, three kinds, **Asparagus Ridgers**, **Corn**, **Bean** and **Pea Planters**, **Fertilizer Distributors**, one or two row, **Hay Rakes**, **Row Markers**, **Land Rollers**, **Ditching** and other **Plows**, **Root Pulpers** and **Slicers**, **Row Indexes**, **Corn Knives**, **Transplanting Hoes**, **Dibbles**, **Barrel Trucks**, **Leaf Racks**, etc.

We have at your disposal a separate booklet or folder covering each line. You can have a full set if you wish. When you write won't you please tell us what size place you have so we can make an intelligent recommendation where desirable. Also have a spraying guide which will be sent free on application.

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Established 1836

Where you saw it will help you, them and us

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POULTRY FOODS

We have led the field in the manufacture of "poultry food" for over a quarter of a century. Our products are recognized the world over for their high quality and excellent feeding value. Every successful poultryman knows the value of Darling's Meat Crisps; Darling's Meat Scraps; Darling's Granulated Bone; and Darling's Fattening Tallow. These products are used by thousands of poultrymen the world over. They have found them the best food for their purpose and the most economical.

VALUABLE BOOK FREE

Let us send you our book entitled "Feeding Secrets of Famous Poultrymen." It contains a good description of our feeds and will satisfy your interest. We will also send free samples if you will tell us in which of our products you are interested.

DARLING & COMPANY
DEPT. 63 U. S. YARDS CHICAGO

Know Your LAND

This
Book
Tells
How
You
Can
Make
It
Better



OUR FREE BOOKLET "VERTICAL FARMING" tells the composition of soil, how it can be improved and why explosives are the most practical and economical agencies to use. This booklet is prepared by G. E. Bailey, Professor of Geology of Southern California University. Get this FREE BOOK. Know your land and apply Professor Bailey's recommendations. A postal request will get you a copy. Address dept. 666 F.

E. I. du Pont de Nemours & Co.

Powder Makers Since 1802
Wilmington, Delaware

Why Not Drain?

(Continued from page 120)

this portion. Now there is one field where formerly there were two. In the spring we can plow this field as early as any other. There are no more mosquitoes breeding in the stagnant ditch. The field has been entirely transformed and the only way one can tell where the former wet area was is by noticing, during the growing season, that the crop on this area is best.

There is no reason, I believe, why there should be 525,000 acres of undrained land in this state. The need of drainage is great. No one denies it. Farmers admit it. They say, "Yes, my land needs some drainage, but let the man after me do it." He will do it, but he will also get the profit.

The Ontario College of Agriculture then organized a drainage extension department which tried to persuade the farmers to drain their land. But still they would not do it. Finally the college bought a ditching machine and other necessary tools and started on the road. They stopped and drained the first field they saw in need of drainage after having first obtained permission from the owner. They always left half of the field undrained so the farmer could see the difference. After the first job was finished they went to the next and so on for several weeks. They next went about to collect data concerning the results. In every case there was a marked difference in the yield of the drained and undrained portions of the field. But what did the farmer say? If it happened that the driest portion of the field was drained, he said, "Oh well, the best crop should have grown there anyway. That was the driest spot." If it happened that the lowest portion was drained, he said, "Oh well, the best crop should have grown there anyway, that was the best land." At the same time however it was noticed that last summer those farmers drained the other half of their fields. I wonder if we New York farmers would care to admit that the same drastic measure is necessary to convince us?



You Cannot Afford to Feed Your High Priced Grain

Hauled to market, your oats and corn bring you a money-making profit—ready cash for every pound you raise.

Fed to your live stock in the ordinary manner, 25 to 30 pounds out of every 100 pounds of whole grain you feed is undigested—passes through the digestive canal without giving the animal the slightest benefit.

This waste increases the cost of the grain you feed by over one-fourth—makes every 100 pounds of oats or corn you feed cost you from one-fourth to one-third more than the market price.

Can You Afford It?

SUCRENE



Molasses and Grain Products Feeds Offer You a Five-Fold Profit

They enable you to take the big profits on your grain crop. Cut your feed bills 25% or more. Bring better results than any other feed you can mix or buy. Do not require expensive side feeds to make them effective. Save you the labor and cost of mixing.

Money Making Feeds for all Farm Animals

There's a carefully prepared Sucrene Feed for every animal on the farm. Each feed contains the correct proportions of protein, fat, carbohydrates and other ingredients, to insure maximum productiveness and development, at lowest feed cost.

The Molasses in Sucrene Feeds makes them highly palatable, aids digestion, promotes health. There's not an animal on your place that will not prefer Sucrene Feed to any other feed.

Every sack guaranteed uniform high quality.

Write for our free books on scientific feeding.

Fill out and mail us the coupon or write us a postal.

American Milling Company

Sucrene Station 20

PEORIA, ILL.

Please send me free books on feeding and on feeds checked below:

<input type="checkbox"/> Sucrene Dairy Feed	<input type="checkbox"/> Sucrene Poultry Feeds
<input type="checkbox"/> Sucrene Calf Meal	<input type="checkbox"/> Amco Fat Maker (for steers)
<input type="checkbox"/> Sucrene Hog Meal	<input type="checkbox"/> Amco Dairy Feed (a strong protein feed for milk making)
<input type="checkbox"/> Sucrene Allalfa Horse Feed	

I have _____ cows, _____ hogs, _____ horses.

My name _____

P. O. _____ State _____

My Dealer's Name _____

P. O. _____ State _____

Where you saw it will help you, them and us

Till Deep

Give the roots a chance

You can go deep without bringing up trash, stones or manure. You can at the same time pulverize and level. For thrifty crops rely upon the forged sharp, penetrating disks of the

Cutaway

(CLARK)

Disk Harrow—Single or Double Action—light in draft and built for a lifetime of service. If your dealer has not the genuine CUTAWAY, write to us direct. Be sure to write us for our new free book, "The Soil and Its Tillage." Get your copy now.

The Cutaway Harrow Company

Maker of the original CLARK disk harrows and plows

204 Main St., Higganum, Conn.



This Double Action Harrow saves one disking

For Cheese Making on the Farm Use Chr. Hansen's Rennet Tablets and Cheese Color Tablets

Also try our Danish Butter Color

It gives that beautiful golden June shade and does not affect, in the least degree, the aroma or flavor of the butter.

Chr. Hansen's

Rennet Extract, Cheese Color, and Lactic Ferment Culture, have stood the test of time.

Chr. Hansen's Laboratory

Box 1212

Little Falls, N. Y.

Former Student Notes

(Continued from page 132)

'01, W. C.—Earl Phelps' address is 505 Vinney Block, Syracuse. He is in the real estate business.

'02, W. C.—Harold F. Hubbs writes as follows:

"For the past four years my brother and I have been on a 96-acre farm near Kirkville. We raise potatoes and average a little over 180 bushels to the acre. We have 29 pure-bred Holsteins. We haven't done very much official testing but the little we have done has been fairly successful, as, for example, a record of 32.91 pounds of butter in 7 days. Our herd sire is from the only Holstein cow that ever made a world's record as a two year old and again as a three year old, her records being 27.09 pounds of butter in 7 days at two and a half years and 33.661 pounds in 7 days at three years. Although she died before she was five years old, she is the dam of three heifers that average over 21 pounds of butter in 7 days, as junior two year olds."

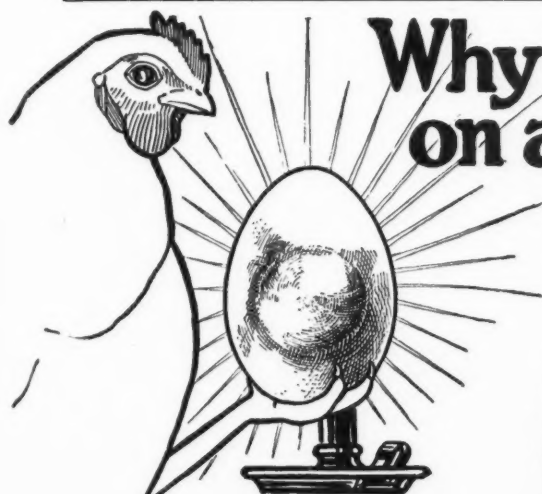
'08, B. S.—C. J. Hunn is now at the University of Porto Rico, at Mayagne.

Ex. '13; '10, B. S.—William H. Kemp, Jr. taught agriculture last year in the high school at Euclair, Wisconsin. This year he is teaching in the High School at Missouri Valley, Iowa.

'11, W. C.—A. V. Jillse is at Twiners Falls, Massachusetts, where he is engaged in general farming, lumbering, and the retail meat and grain business. His specialty in the farming line is the bringing up of run-down farms by the application of a rotation of corn, oats and hay. He reports that in one case he produced two and one-half tons per acre of fancy timothy hay, three years after breaking. He conducts experiments in fertilization, lime on alfalfa and the raising of mule foot hogs.

'12, B. S.—James C. Otis taught agriculture in the high schools of Cortland and Middletown during the years of 1912-13 and 1913-15, respectively. Since May, 1915, he has been county agent in Windsor County, Vermont.

Where you saw it will help you, them and us



Why hens go on a strike!

The feed elements that make *whites* of eggs are entirely different from those that make *yolks*. When hens aren't fed both the *white* and *yolk* making elements, they can't lay.



Missouri Experiment Station tests prove that 100 lbs. of wheat, corn, oats, barley and kaffir corn make (above bodily maintenance) an average of 224 yolks to 154 whites. Based on data from the same experiments, Purina formulas produce, (above bodily maintenance), as follows:—

Purina Scratch Feed	247.49	yolks	142.11	whites
Purina Chicken Chowder	182.05	"	282.55	"
Combined Ration	429.54	yolks	424.66	whites

These Purina feeds not only make a practically *equal* number of whites and yolks but *more* of both than ordinary feeds.

Note that Purina Chicken Chowder contains the necessary white-forming elements to balance up the yolk-making grain ration. That's why it makes hens lay so heavily. Instead of the yolks being absorbed by the hen's system, Purina Chicken Chowder makes the whites to *complete* the eggs and they are laid. Thus we can absolutely guarantee

more eggs or money back

on Purina Chicken Chowder if fed with Purina Scratch Feed as directed. You take no risk. Write today for further information and for our

FREE
Poultry Book
64 Pages

Contents: Baby chicks, Cures of Diseases, Breeding and Feeding Charts, Best Recipes for Cooking Eggs, Poultry, etc. Plans for Poultry Houses, Trap Nests and Fixtures, Daily Egg Records (Spaces for Keeping), Timely Poultry Pointers, etc. Write for free copy today.

Ralston Purina Co., 966 Gratiot St., St. Louis, Mo.

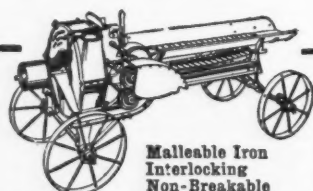
Kalamazoo Silos

YOU MAY DARN, WASH OR PATCH
Cotton, wool or linen fabrics, you may repair leather, use either over and over but a pound of butter, cheese, poultry, beef, mutton or pork used today calls for its reproduction tomorrow.

HOW to lower cost, to increase amount produced—at same time improve the value of your main asset which is
THE FERTILITY OF YOUR ACRES.

Ask Kalamazoo Tank & Silo Co. Kalamazoo, Michigan
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Agents should have Kalamazoo plan, with sugar, for buyer and sales agents. Dept. 635.



CUTTER WHEEL
New and Distinctive Features of Service and Safety in Operation
Kalamazoo Tank & Silo Co. Kalamazoo, Mich.,
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Ask Your Grocer for

Burns' Family Bread

FOR SALE EVERYWHERE

Scientifically made from the best ingredients obtainable, in a clean bakery

Call and see for yourselves

**BREAKFAST ROLLS
A SPECIALTY**

Bakery at 110 North Corn Street
Ithaca, N. Y.

"Rarva" Meat Meal

85 Per cent. Protein
7 Per cent. Fat

IS A

Poultry Food

Free from preservatives, chemicals or foreign matter of any description. It is a meat builder bonemaker and EGG PRODUCER. It is the lean fibre of beef, clean and pure, appetizing and odorless.

Thoroughly dry, ready to feed, or may be used in the mash, as you prefer. Sample on request.

Price "Rarva" Meat Meal:

1-100 Lb. Sacks	\$ 4.00
5-100 Lb. Sacks	19.00
10-100 Lb. Sacks	36.50
20-100 Lb. Sacks	70.00

F. O. B. Richmond, Cash With Order

Richmond Abattoir

Box 267, Richmond, Va.

Send for the "Rarva" booklet.

Cornell Men

Read Professor Kent's Letter

Cornell University, Aug. 12, 1916.
Carbola Chemical Co.
Gentlemen:

After giving Carbola a good trial, I am very glad to say that we have found it to be far superior to white-wash in ease of application and in that it does not scale or rub off to any extent. Further, the house has been free from mites during the past year. As our order would indicate, our first test warrants a much more extensive use. Sincerely yours, O. B. KENT.

CARBOLA
The Disinfecting White Paint

A snow-white mineral paint combined with the world's strongest germicide. Comes in powder form. Mix with water and put on with brush or sprayer.

Use It Instead Of Whitewash
to keep barns, poultry houses, etc. clean and sanitary. Your dealer has it.

10 lbs. (10 gals.) \$1 and postage
20 lbs. (20 gals.) \$2 del'd 50 lbs. (50 gals.) \$4 del'd
Trial package and booklet for 25 cents and your dealer's name.

Carbola Chemical Co.
Dept. B 7 East 42nd St. New York

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Farms on Cayuga Heights

macadam, three miles from Cornell University, varying in size from seventy acres to two hundred and thirty acres at from \$5,000 to \$18,500 are now in the market.

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Cayuga Heights Land Company

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John P. Jones, '13, making mile
intercollegiate record 4:14 2-5.

Treman, King & Co.

Cornell's New Sporting Goods Store

Last year we outfitted every Varsity Major and Minor Sports team. Also all Freshman teams.

Foot Ball, Track, Base Ball,
Cross-Country, Hockey, the
Crews, Wrestling, Soccer,
Basket Ball

"Everything for Athletics"

Where you saw it will help you, them and us

C. U. A. A.

NOVEMBER—

- 4 Football—Carnegie Institute of Technology—2:30 P. M.
 Football—2nd Varsity—
 Freshman
 Cross Country—Harvard
 Interscholastic Cross Country Association Football—Yale at New Haven
 10 Musical Clubs Concert—Lyceum Theatre —8:15 P. M.
 11 Football—Michigan 2:00 P. M.
 Freshman Football—Manlius School
 Cross Country—Pennsylvania at Philadelphia, Pa.
 15 Association Football—Harvard
 18 Football—Massachusetts Agricultural College—2:00 P. M.
 Freshman Football—Pennsylvania at Philadelphia, Pa.
 Freshman Cross Country—Pennsylvania.
 25 Association Football—Columbia —3:00 P. M.
 30 Football—Pennsylvania at Philadelphia, Pa. 2:00 P. M.
 Association Football—Haverford at Haverford, Pa.

Campus Notes

(Continued from page 136)

C. H. Guise, Instructor in Forestry, spent the later part of October in the Catskills, making a working plan for the forests of Mr. C. M. Roof, near Frost Valley.

Professors H. W. Riley, John Bentley, S. N. Spring, G. A. Works and J. E. Needham are among those who are away from the University on their three-months leave.

The new system of grading and graduated credits in the College of Agriculture went into effect on Oct. 11, Registration Day.

The Poultry Department has received from Mr. K. M. Turner, the inventor of the Dictagraph, a present of two males and three females, all prize-winning White Faveroles, the original stock of which was imported from France. These birds are later to be used for dissection in a study of breed types.

Toward the close of the third term, the classes in plant breeding paid a visit to the experiment station at Geneva for the purpose of studying the plant breeding work which is being done there. Forty-one students took the trip. Mr. R. D. Anthony, of the station, spent a large part of the morning pointing out interesting hybrids to the classes and outlining studies which ought to be undertaken. The class made a careful study of the quality of fruit borne by several hybrid cherry trees.

The work of renovating the old chemistry building has been carried on during the vacation. A roof has been placed over the first floor so that the basement and first floor are open for use. The rooms have been refinished, laboratory fittings have been installed and the offices of the department heads have been equipped.

SHORT HORNS

The Best

\$1.00**Fountain Pens**

in Ithaca

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Paper at**OSBORN'S**

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WASHINGTON, D. C.

Pennsylvania Avenue
18th and H Streets, N. W.

Overlooking White House Grounds

Close to the State, War and Navy Depts.
Convenient to Theatre and Fashionable
Shopping District

EUROPEAN PLAN

Rooms, detached bath, \$1.50 and up

Rooms, private bath, \$2.50 and up

ASK FOR BOOKLET

E. C. OWEN, Manager



Showing the Hotel Powhatan upon the completion of its new addition

"We Make Your Linen Live"

MODERN METHOD LAUNDRY

JOHN REAMER, Prop.

EAST SENECA ST.

ITHACA, NEW YORK

Machinery and Supplies

FOR

Dairies, Creameries
and Milk Dealers

WRITE FOR CATALOG AND PRICES

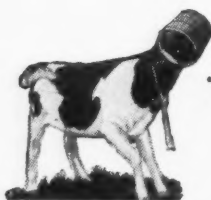
Prompt and Courteous Service

New York State Distributors for the
Cherry Line

D.H. Gowing & Co.

Incorporated

SYRACUSE, N. Y.



Raise Your Calves on Blatchford's Calf Meal and Sell the Milk

More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk. Prevents scouring and insures the early maturity of sleek, handsome calves.

It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 36, Waukegan, Ill.

THE SUCCESS

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Registered



BRAND OF

BEEF CRACKLINGS

is due to its WHOLESOMENESS
and DIGESTIBILITY

THE FLAVELL CO.

ASBURY PARK, N. J.

**H-O
MILK FEED**

A BALANCED RATION
HELPS TO MAKE
MORE MILK

THE H-O COMPANY, MILLS, BUFFALO, N. Y.

THE H-O COMPANY
MILLS
BUFFALO, N. Y.

JOHN J. CAMPBELL
GEN. SALES AGENT
HARTFORD, CONN.

Where you saw it will help you, them and us



A. F. Shannon said if we would take this page it would sell us a lot of Clothing and Furnishings. Does he lie?

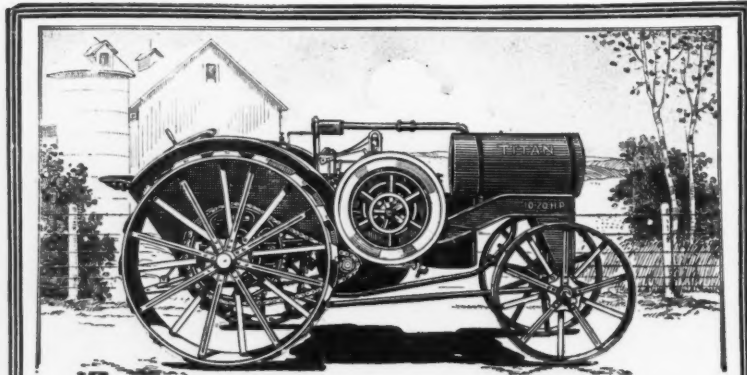
Society & Michaels Sterns Suits and Overcoats \$20 to \$35

Shirts, Gloves, Pajamas and
everything else you'd expect
to find in a first class shop

Stetson & Bostonian Shoes \$5 to \$10

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Where you saw it will help you, them and us



Titan 10-20 \$900 Cash f. o. b. Chicago

THERE is hardly a farm with a hundred acres or more of tillable land but what has belt work enough to keep a 20-H. P. engine busy when not doing field work. This belt work alone will in most cases pay the entire yearly fuel bill of a **Titan 10-20** tractor. Add to this the deep plowing, disking, harrowing, seeding, fallowing, harvesting and hauling the Titan will do during the year, at less than horse cost, and you see at once what a gilt edged investment this tractor is.

Power, strength and economy as combined in the **Titan 10-20**, mean everyday usefulness. It has power and strength to take care of the everyday work of the farm. It is small enough to run light machines with economy. It works successfully on kerosene. It reduces the number of work horses needed. It saves so much in so many different ways, and does so much that it cannot help but pay for itself long before it is worn out.

Write for full information about this **Titan 10-20**—the tractor that pays for itself, that furnishes power at kerosene cost (less than half the price of gasoline), and that is just the right size, weight, and style for farms of 100 acres or more.

International Harvester Company of America

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Where you saw it will help you, them and us



Look for the Light at Night on Dryden Road

NIGHT LUNCH 6:45 P. M. to 12:30

WHEAT'S ICE CREAM

HOT WAFFLES and MAPLE SYRUP

The Dryden Road Cafeteria, *Inc.*

211 Dryden Road

Where you saw it will help you, them and us

Wanzer & Howell *The Grocers*

Our Name Signifies
Quality and Service

Remember that we have a Sea Food Market where you can buy Fresh Fish, Oysters, Clams and other Sea Foods in their season.

FOR SALE

The Tompkins County Breeders' Association has for sale Holstein, Guernsey and Jersey cows, bulls and young stock of both sexes and bull calves of the leading beef breeds.

Rams and ram lambs of nearly all breeds, Delaines, Ramboilletts, Southdowns, Cheviots, Dorsets, etc.

Berkshire, Poland China, Duroc, Jersey and Chester White swine.

Shetland Ponies.

Students and others interested in the purchase of pure bred stock are invited to call at our office and arrange to see the stock.

Tompkins Co. Breeders' Association

306 East State St., Ithaca, N. Y.

If You Read This Adv. You Will Know More About Us

The Stover Printing Co. was founded in 1908 and since that time has grown from a one-man shop to its present size. The owner, A. B. Stover, has been in Ithaca for the past sixteen years and during that time it has been his privilege to serve students of Cornell University and study their special needs.

We are equipped to supply you with anything in the printing line. If we cannot do your job so that you will be satisfied we will tell you and no matter what work we do for you (and we hope to be favored with some) you can rest assured that it will be delivered RIGHT AND ON TIME.

Come to us for your programs, business cards, record cards, letter paper and envelopes, fraternity forms—in fact anything, including punching, perforating, wire stapling, padding, etc. We'll make you one or a million.

STOVER PRINTING CO.
115-117 North Tioga Street

F. H. ATWATER

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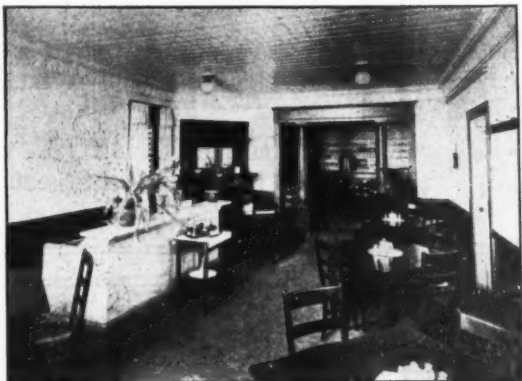
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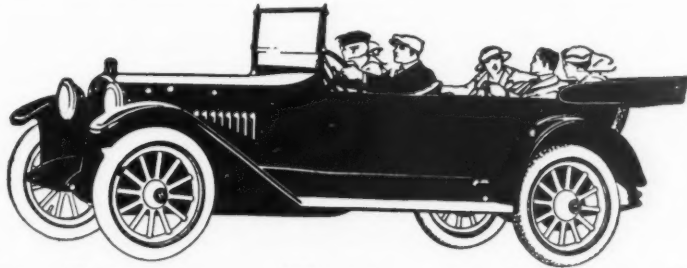
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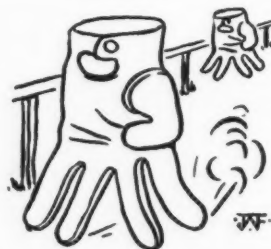
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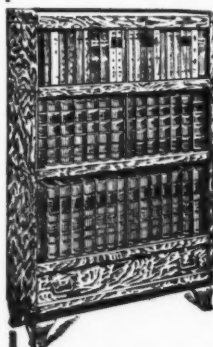
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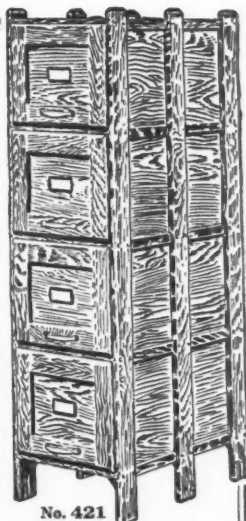
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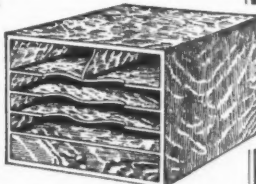
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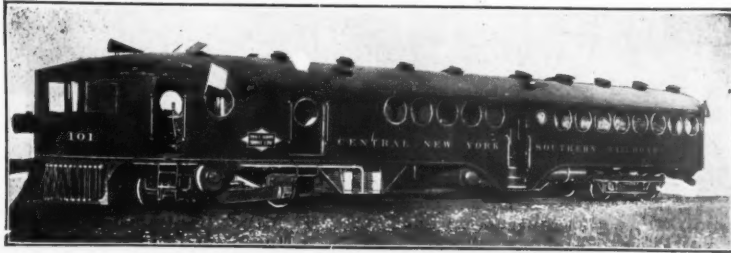
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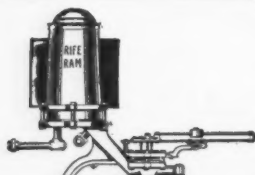
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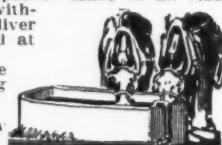
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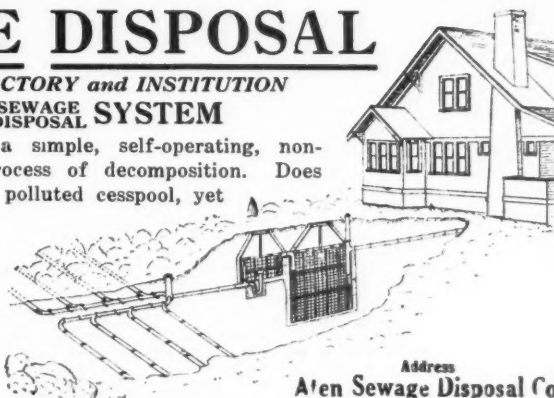
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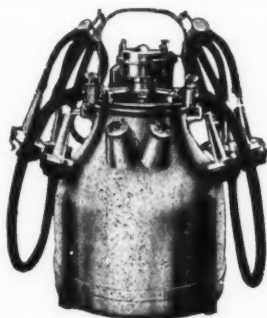


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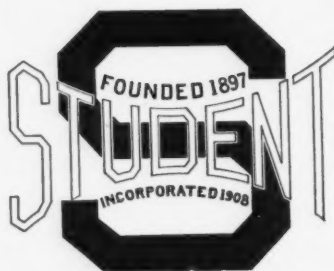
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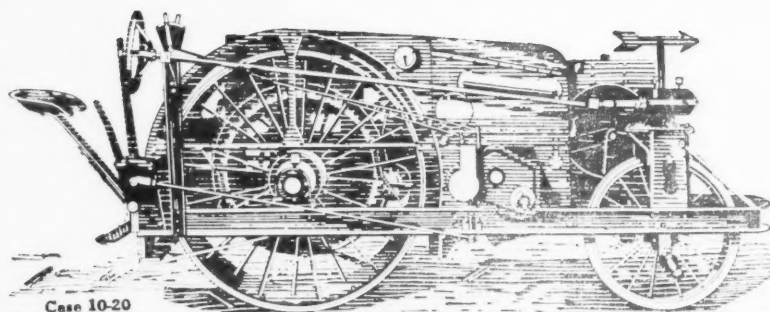
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